LITERARY GAZETTE

AND

Journal of Archæology, Science, and Art.

N° 2120. LONDON, SATURDAY, SEPTEMBER 5, 1857. *Price* Fourpence. *Stamped Edition*, Fivepence.

METROPOLITAN SCHOOL OF SCIENCE APPLIED TO MINING AND THE ARTS.—The Prospectus for the Ensuing SESSION 1857-8 (containing information about the Lectures, Laboratories, Fees, &c.) is ready, and will be sent on application to TRENHAM REEKS, Esq., Museum of Practical Geology, Jermyn Street, London.

RODERICK I. MURCHISON, Director.

SOUTH KENSINGTON MUSEUM.—The Museum will be open FREE on MONDAYS, MONDAY Evenings, TUESDAYS, TUESDAY Evenings, and SATURDAYS. The Students' days are WEDNESDAYS, WEDNESDAY Evenings, THURSDAYS, and FRIDAYS, when the Public are admitted on payment of Sixpence each person. During the month of September the hours are from 10 to 5 in the day time, and from 7 to 10 in the Evening.

OWENS' COLLEGE, MANCHESTER (in connexion with the UNIVERSITY OF LONDON).

SESSION 1857-8.

The College will OPEN for the Session on MONDAY, the 12th day of October next. The Examinations, preliminary to admission, hitherto required are for the present discontinued. The Session will terminate in July, 1858.

PRINCIPAL—J. G. GREENWOOD, B.A.

The Trustees have to announce that Mr. Greenwood has been appointed Principal in the place of Mr. Scott, who has resigned that office, though the Trustees are glad to state that the College retains the advantage of his valuable aid as Professor.

Courses of Instruction will be given in the following departments:—

Languages and Literature of Greece and Rome—Professor J. G. GREENWOOD, B.A.
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Chemistry—Elementary Course—The Application of Chemistry to the Arts and Manufactures, and Analytical and Practical Course, with Manipulation in the Laboratory—Professor EDWARD FRANKLAND, Ph.D., F.R.S., F.C.S.

N.B. In consequence of Dr. Frankland having accepted the appointment of Lecturer on Chemistry at St. Bartholomew's Hospital, the Professorship of Chemistry will shortly become vacant, and will be supplied without delay. Due notice of the appointment of a successor will be given.

Natural History—The entire Course occupies Two Sessions. The subjects for this Session are Geology and Botany—Professor W. C. WILLIAMSON, M.R.C.S.L., F.R.S.
French Language and Literature—Mons. A. PODEVIN.
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EVENING CLASSES FOR PERSONS NOT ATTENDING THE COLLEGE AS STUDENTS.

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N.B.—Attendance upon these courses, under the prescribed regulations, qualifies for admission to the Examinations for Degrees in Arts conferred by the University of London.

Additional Lectures on which the attendance of the Students is optional, and without fees:—

On the Greek of the New Testament, by Professor GREENWOOD.
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On the Relations of Religion to the Life of the Scholar, by Professor SCOTT.

SCHOLARSHIPS AND PRIZES.

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The Victoria Scholarship, for competition in Classical Learning, annual value £20, tenable for two years.

The Wellington Scholarship, for competition in the critical knowledge of the Greek Text of the New Testament; annual value £20, tenable for one year.

The Dalton Scholarships, viz. two scholarships in Chemistry, annual value £50 each, tenable for two years; two scholarships in Mathematics, annual value £25 each, tenable for not more than two years.

Dalton Prizes in Chemistry are also intended to be offered, the particulars of which will be published previous to the opening of the session.

The Dalton Prize in Natural History, value £15, given annually.

For the better maintenance of discipline and superintendence of study out of class hours, arrangements are in progress according to which parents and guardians may place students during the day under the superintendence of an officer appointed to that charge. Those so entered will, for a fixed fee, have the advantage of being employed in study under his superintendence, and with his assistance when not employed in lectures; and dinner will be provided within the college walls for such as may desire it. For students not so entered, the college will, as hitherto, disclaim all direct responsibility, except during class hours.

Further particulars relating to the courses and terms of instruction and the conditions upon which the scholarships and prizes may be competed for, will be found in a prospectus which may be had from Mr. Nicholson at the College, Quay-street, Manchester, where applications may be made to the Principal on Monday, the 31st. September, and thence daily up to and including the 25th of September next, between the hours of ten and one.

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St. James's Chambers, South King-street,
Manchester, 26th August, 1857.

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REVIEWS.

Letters from the Slave States. By James Stirling. John W. Parker and Son.

THERE is one difficulty in writing about America which tourists too often overlook—that what was true yesterday will not be true to-morrow, and that what is true to-day of one part of the Union is false of another part. The infinite varieties and fluctuations of a population composed of different races, living under different social systems, and subject to the continual influx of new settlers, while it is itself in a constant state of movement, are not sufficiently considered by travellers who attempt, in lively descriptions and hasty criticisms, to fix "the Cynthia of the minute," and to present a sort of flying photograph of a dissolving view. The philosophical writers, at the head of whom stands De Tocqueville, are less open to this objection. They at least endeavour to generalize from such materials as they can collect. Yet, with all their care, they cannot escape the common fate of assigning permanent importance to fugitive characteristics, of occasionally mistaking local or exceptional cases for universal facts, and of drawing rash conclusions from obscure or imperfect data. Mr. Stirling belongs to this latter class. His book is a treatise upon American institutions, with a special view to the action and influences of slavery, rather than a work of travels. We have glimpses, here and there, of certain social features, but not in the way of portraiture. Whenever Mr. Stirling lets us see any snatches of American life, it is solely for the purpose of illustrating and enforcing his argument. His general impressions are much the same as those of most Englishmen who have traversed the Union in the hope of obtaining an insight into the great problem that is labouring and heaving throughout its length and breadth. He is utterly perplexed about the future of America. He sees great faults and great merits in the people. He is struck with horror by slavery in all its aspects. He thinks that it cannot be much longer maintained, although he does not know exactly how it is to be got rid of without breaking up the federal republic, a result which does not, however, appear to him to be fraught with much danger, there being clearly space enough for two ample empires. He recognises, as all travellers do, the extraordinary progress of America; but he discerns also the usual defects of rapidity, in the slovenliness and insecurity with which every step of that progress is taken. Upon the whole, he thinks hopefully of the country, and, forming his judgments with calmness and impartiality, he seldom commits himself to paradoxes or extravagant theories.

His opinions are sometimes shaped with so much caution, that his incidental revelations of the actual state of things disclose a worse reality than he chooses to adopt as a basis of reasoning. Thus, he says that he is unable to answer the question whether the Americans are a self-governing people in the sense of being governed by laws and authorities of their own institution, or whether they are governed by the mob. Yet his whole book proves that neither the law nor the executive possesses the slightest influence over the will of the masses. The sovereignty of the people is carried out in a spirit, and to an extent, which sets aside all authority when order, reason, and justice happen to be opposed to the popular will. We need not go to Missouri or Kansas for evidence of this remarkable inconsistency in a republic which boasts of its freedom. We have a proof of it in the corruption which pervades every department of the state throughout the entire Union. A distinguished southern lawyer told Mr. Stirling that he considered universal suffrage to be the plague spot of the country. It prevented worth and intelligence from having their due weight, and lifted the mob above the legislature:—

"The gentlemen to whom I have referred told me that Europeans can have no idea of the extent of corruption in this country; and really the evidence which is forced upon me of corruption, both in municipal and general government, is such that it is impossible to resist it, even making all due allowance for the exaggeration of party statement. This evil, too, I believe, has its root in the ultra-Democratic nature of American institutions. The populace is the source of all authority, and those only can arrive at power who are willing to propitiate the populace even at the expense of principle. Hence a race of trading politicians who live by pandering to popular whim and prejudice, while men who respect themselves and insist on the luxury of 'keeping a conscience,' are, as a rule, shut out from all participation in public affairs. A politician here, as my informant said, is more thoroughly tongue-tied than in the most despotic State of Europe. He dare not, for his life, express an opinion hostile to that of his constituents. The first moment of his independence would be the last of his power."

In New Orleans, where the proportion of crime to population is absolutely incredible, the authorities confess that they could not put the law into execution. The amount of crime, appalling as it is, is less appalling than its impunity. It appears, from a report of the Attorney-General of Louisiana on the state of crime in New Orleans, that notwithstanding the frightful excesses which were committed, the peaceful citizens dare not accuse, nor the magistrates convict, criminals:—

"We learn from the same authoritative document, that the fear of criminal vengeance is much stronger than the fear of the law. 'It is well understood,' says the Attorney-General, 'that no affidavits are filed against the offenders, from an apprehension that any attempt to bring them to justice would lead to the sacrifice of the affiant's life. A general sense of insecurity prevails in the community, and a conviction exists in the minds of many persons, who have been grievously beaten, that it is better to endure present evil than, by lodging a complaint, take the risk of assassination.' Had ever a poor Attorney-General so humiliating a 'Report' to make? Peaceable citizens, 'grievously beaten,' dare not appeal to the law for protection, because the villains are stronger than the law! Is this savagery or civilization?"

With such facts before us as these, can there be any doubt as to whether the people of America are governed by law or the mob? We frequently hear in this country of the salutary influence of the ballot in ensuring purity of election. Here is one example out of ten thousand:—

"The Know-Nothing party, which is here in the ascendant, have possession of the municipality; the magistrates, if not the creatures of the Know-Nothing organization, are at least devoted to their interests, and inclined to wink at their enormities. During the late election this organized body prevented all free voting, except at one polling-booth, where a dozen bold young men of the opposite party marched up, with a pistol in each hand, and threatened to shoot down the first man who should obstruct a voter. Since the election the same terrorism has continued, principally directed against the foreign portion of the population. The ruffians who perpetrate these unprovoked and murderous assaults are called 'Thugs;' and the social state of New Orleans is little better than a Reign of Terror."

Another striking evidence of mob despotism is that impatience of authority which displays itself in the contempt shown towards the very inefficient police which lurk about the corners of the streets. Indeed, this very inefficiency on the part of a body nominally appointed to preserve the public peace, is in itself a sign of the inherent weakness of the executive. A policeman in England is certain of being supported in the discharge of his duties by all honest people—in America he is regarded as the base instrument of despotic power:—

"In no city of the Union have I seen any appearance of an efficient, well-organized body of police. Any stray policeman you may encounter seems a poor, isolated, dispirited creature, half ashamed of himself and his office, and utterly inefficient for any public good. At public meetings, at jams at a theatre-door, or wherever else rows and crushes are to be expected, you see no six-foot, uniformed peace-maker. On the contrary, you have the uneasy sensation that, if the floor falls, or a row is got up, you have no chance of safety but from such innate love of order as may dwell in the hearts of the assembled rowdyism. Nothing in all Canada reminded me so much of Old England as meeting a smart, blue-coated, buttoned-up policeman in the streets of Toronto. Although it was but a plank pavement on which we met, I could hardly fancy we were four thousand miles from home. In the States the policemen wear no uniform. In New York they wear a badge dangling from a button-hole. Their principal occupation in that metropolis, as far as I could see, was handing ladies over the crossings in Broadway."

A close examination of the condition of the slaves in the southern states, confirmed the horror Mr. Stirling had conceived of the institution at a distance. The more he saw of the relations between the planters and the negroes, the more he became convinced that the iniquity contains within it the seeds of dissolution. A great agitation is abroad amongst the slaves. Their numbers and their value are augmenting daily; and their intelligence is gradually rising to the great occasion which one day or another lies assuredly before them. There are now, probably, four millions of slaves in the south. What is to be their destiny? When the white man advanced upon the hunting-grounds of the Indian the issue was inevitable. But will this solution apply to the negro population of America? Can four millions of human beings be exterminated as easily as a scattered tribe of aborigines? And even if they could, what would then become of their exterminators?—

"A caste may be held down, but how can a people be kept under? It is to be observed that while this increase of numbers makes some solution of the difficulty more inevitable, it also makes it more perplexing. A whole people cannot be removed; the whites say they will not live in a land in common with the blacks, if free and equal. What then is to be done? This is the difficulty that staggered De Tocqueville, and made him all but hopeless. It is, doubtless, a great difficulty; but Providence has led men before out of greater difficulties."

The contest waging between the North and South widens, and assumes from day to day more violent forms. The South, no longer satisfied with standing on the defensive, demands the extension of slavery into new

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LONDON, SATURDAY, SEPTEMBER 5, 1857.

REVIEWS.

Letters from the Slave States. By James Stirling. John W. Parker and Son.

THERE is one difficulty in writing about America which tourists too often overlook—that what was true yesterday will not be true to-morrow, and that what is true to-day of one part of the Union is false of another part. The infinite varieties and fluctuations of a population composed of different races, living under different social systems, and subject to the continual influx of new settlers, while it is itself in a constant state of movement, are not sufficiently considered by travellers who attempt, in lively descriptions and hasty criticisms, to fix "the Cynthia of the minute," and to present a sort of flying photograph of a dissolving view. The philosophical writers, at the head of whom stands De Tocqueville, are less open to this objection. They at least endeavour to generalize from such materials as they can collect. Yet, with all their care, they cannot escape the common fate of assigning permanent importance to fugitive characteristics, of occasionally mistaking local or exceptional cases for universal facts, and of drawing rash conclusions from obscure or imperfect data. Mr. Stirling belongs to this latter class. His book is a treatise upon American institutions, with a special view to the action and influences of slavery, rather than a work of travels. We have glimpses, here and there, of certain social features, but not in the way of portraiture. Whenever Mr. Stirling lets us see any snatches of American life, it is solely for the purpose of illustrating and enforcing his argument. His general impressions are much the same as those of most Englishmen who have traversed the Union in the hope of obtaining an insight into the great problem that is labouring and heaving throughout its length and breadth. He is utterly perplexed about the future of America. He sees great faults and great merits in the people. He is struck with horror by slavery in all its aspects. He thinks that it cannot be much longer maintained, although he does not know exactly how it is to be got rid of without breaking up the federal republic, a result which does not, however, appear to him to be fraught with much danger, there being clearly space enough for two ample empires. He recognises, as all travellers do, the extraordinary progress of America; but he discerns also the usual defects of rapidity, in the slovenliness and insecurity with which every step of that progress is taken. Upon the whole, he thinks hopefully of the country, and, forming his judgments with calmness and impartiality, he seldom commits himself to paradoxes or extravagant theories.

His opinions are sometimes shaped with so much caution, that his incidental revelations of the actual state of things disclose a worse reality than he chooses to adopt as a basis of reasoning. Thus, he says that he is unable to answer the question whether the Americans are a self-governing people in the sense of being governed by laws and authorities of their own institution, or whether they are governed by the mob. Yet his whole book proves that neither the law nor the executive possesses the slightest influence over the will of the masses. The sovereignty of the people is carried out in a spirit, and to an extent, which sets aside all authority when order, reason, and justice happen to be opposed to the popular will. We need not go to Missouri or Kansas for evidence of this remarkable inconsistency in a republic which boasts of its freedom. We have a proof of it in the corruption which pervades every department of the state throughout the entire Union. A distinguished southern lawyer told Mr. Stirling that he considered universal suffrage to be the plague spot of the country. It prevented worth and intelligence from having their due weight, and lifted the mob above the legislature:—

"The gentlemen to whom I have referred told me that Europeans can have no idea of the extent of corruption in this country; and really the evidence which is forced upon me of corruption, both in municipal and general government, is such that it is impossible to resist it, even making all due allowance for the exaggeration of party statement. This evil, too, I believe, has its root in the ultra-Democratic nature of American institutions. The populace is the source of all authority, and those only can arrive at power who are willing to propitiate the populace even at the expense of principle. Hence a race of trading politicians who live by pandering to popular whim and prejudice, while men who respect themselves and insist on the luxury of 'keeping a conscience,' are, as a rule, shut out from all participation in public affairs. A politician here, as my informant said, is more thoroughly tongue-tied than in the most despotic State of Europe. He dare not, for his life, express an opinion hostile to that of his constituents. The first moment of his independence would be the last of his power."

In New Orleans, where the proportion of crime to population is absolutely incredible, the authorities confess that they could not put the law into execution. The amount of crime, appalling as it is, is less appalling than its impunity. It appears, from a report of the Attorney-General of Louisiana on the state of crime in New Orleans, that notwithstanding the frightful excesses which were committed, the peaceful citizens dare not accuse, nor the magistrates convict, criminals:—

"We learn from the same authoritative document, that the fear of criminal vengeance is much stronger than the fear of the law. 'It is well understood,' says the Attorney-General, 'that no affidavits are filed against the offenders, from an apprehension that any attempt to bring them to justice would lead to the sacrifice of the affiant's life. A general sense of insecurity prevails in the community, and a conviction exists in the minds of many persons, who have been grievously beaten, that it is better to endure present evil than, by lodging a complaint, take the risk of assassination.' Had ever a poor Attorney-General so humiliating a 'Report' to make? Peaceable citizens, 'grievously beaten,' dare not appeal to the law for protection, because the villains are stronger than the law! Is this savagery or civilization?"

With such facts before us as these, can there be any doubt as to whether the people of America are governed by law or the mob? We frequently hear in this country of the salutary influence of the ballot in ensuring purity of election. Here is one example out of ten thousand:—

"The Know-Nothing party, which is here in the ascendant, have possession of the municipality; the magistrates, if not the creatures of the Know-Nothing organization, are at least devoted to their interests, and inclined to wink at their enormities. During the late election this organized body prevented all free voting, except at one polling-booth, where a dozen bold young men of the opposite party marched up, with a pistol in each hand, and threatened to shoot down the first man who should obstruct a voter. Since the election the same terrorism has continued, principally directed against the foreign portion of the population. The ruffians who perpetrate these unprovoked and murderous assaults are called 'Thugs;' and the social state of New Orleans is little better than a Reign of Terror."

Another striking evidence of mob despotism is that impatience of authority which displays itself in the contempt shown towards the very inefficient police which lurk about the corners of the streets. Indeed, this very inefficiency on the part of a body nominally appointed to preserve the public peace, is in itself a sign of the inherent weakness of the executive. A policeman in England is certain of being supported in the discharge of his duties by all honest people—in America he is regarded as the base instrument of despotic power:—

"In no city of the Union have I seen any appearance of an efficient, well-organized body of police. Any stray policeman you may encounter seems a poor, isolated, dispirited creature, half ashamed of himself and his office, and utterly inefficient for any public good. At public meetings, at jams at a theatre-door, or wherever else rows and crushes are to be expected, you see no six-foot, uniformed peace-maker. On the contrary, you have the uneasy sensation that, if the floor falls, or a row is got up, you have no chance of safety but from such innate love of order as may dwell in the hearts of the assembled rowdyism. Nothing in all Canada reminded me so much of Old England as meeting a smart, blue-coated, buttoned-up policeman in the streets of Toronto. Although it was but a plank pavement on which we met, I could hardly fancy we were four thousand miles from home. In the States the policemen wear no uniform. In New York they wear a badge dangling from a button-hole. Their principal occupation in that metropolis, as far as I could see, was handing ladies over the crossings in Broadway."

A close examination of the condition of the slaves in the southern states, confirmed the horror Mr. Stirling had conceived of the institution at a distance. The more he saw of the relations between the planters and the negroes, the more he became convinced that the iniquity contains within it the seeds of dissolution. A great agitation is abroad amongst the slaves. Their numbers and their value are augmenting daily; and their intelligence is gradually rising to the great occasion which one day or another lies assuredly before them. There are now, probably, four millions of slaves in the south. What is to be their destiny? When the white man advanced upon the hunting-grounds of the Indian the issue was inevitable. But will this solution apply to the negro population of America? Can four millions of human beings be exterminated as easily as a scattered tribe of aborigines? And even if they could, what would then become of their exterminators?—

"A caste may be held down, but how can a people be kept under? It is to be observed that while this increase of numbers makes some solution of the difficulty more inevitable, it also makes it more perplexing. A whole people cannot be removed; the whites say they will not live in a land in common with the blacks, if free and equal. What then is to be done? This is the difficulty that staggered De Tocqueville, and made him all but hopeless. It is, doubtless, a great difficulty; but Providence has led men before out of greater difficulties."

The contest waging between the North and South widens, and assumes from day to day more violent forms. The South, no longer satisfied with standing on the defensive, demands the extension of slavery into new

states; nor does it rest here—it demands the reopening of the slave trade. "If it is a right thing," they say, "to possess slaves, it must be a right thing to acquire them;" and the logic must be allowed to be unanswerable. The North, on the other hand, resists by every practicable means all attempts to extend the principle of slavery. The late Presidential election was the battle-ground between them; and although the South obtained a numerical triumph, Mr. Stirling regards it as a real defeat:—

"The strong minority which the North was able to bring together in so short a time, and under all the disadvantages of broken party-ties, new organization, and old party prepossessions, not to mention the official power of their opponents, was a virtual victory. And this is the feeling of the South. They regard this Presidential victory only as a respite, not as a final and triumphant settlement of the question at issue; and hence their present object seems mainly to be, to prepare for the time when fortune may give the victory to their opponents. The Senate is the point to which American politicians mainly look. The Free States have already a majority of two. Minnesota, when admitted, will make their majority four, and the South fears that if Missouri were surrounded by Free States it might renounce slavery, which would raise the free majority in the Senate to eight. There is no wonder, therefore, that they strove hard to make its neighbour Kansas a Slave State, and, when fair means failed, used foul."

Nothing is more suggestive in this struggle than the difference presented by the material condition of the North and South. Free labour in the former is productive of rapidly increasing prosperity, while slave labour in the latter is as rapidly reducing the substantial resources of the landowners. We cannot here go into the subject of the agricultural systems imposed upon the North and South by the nature of the labour they employ, but the results may be gathered from the following passage, in which Mr. Stirling is speaking of the culture adopted in the Slave States:—

"The need for 'improvement' is visible to all men. With exhausted fields, and an increasing population calling aloud for food, the husbandman would gladly use better methods; but all his efforts are paralysed by a system which affords him only dear and inefficient negro labour, and at the same time shuts out the cheaper and better labour, which his competitors in the neighbouring Free States have at their disposal. Let us have patience. The beginning of the end is at hand. The need is too pressing, and the interest too evident, that men's eyes should long be closed to so simple a truth."

Another element is the cost of slave labour, which is increasing yearly, and which cannot yet be supposed to have reached its maximum. The excess of the demand over the supply produces this inevitable consequence; and as no other labour can be introduced, the dilemma of the slave owner deepens in perplexity. When, under such circumstances as these, the abolition of slavery is urged upon him, he is undoubtedly placed in a position of no ordinary difficulty. The whites cannot spare the blacks, and even if they were willing to emancipate them, how are they to obtain compensation for their loss? To suppose that they will ever be emancipated by purchase—that is, by a general scheme of remuneration to the owners—is obviously out of the question. Assuming the population of slaves to be four millions, and the average value per head to be 700 dollars, or 150*l*., as estimated by Major Beard, "the great slave auctioneer of New Orleans, a most competent authority," the total sum required to liberate the slaves would amount to six hundred millions of money; "a sum which assuredly," says Mr. Stirling, "will not be forthcoming for any scheme of negro emancipation." How then is that issue to be accomplished, which many people believe to be certain and near at hand? Mr. Stirling thinks that the great revolution will be brought about by the slave-owners themselves, that it will proceed from economical motives, that slavery, becoming more and more costly and unprofitable, will be gradually relinquished, and that this vast change will proceed, as no doubt it will should it ever take place, from the frontier states on the north in the first instance. The argument is close and ingenious, and looks feasible upon paper; but slavery and slave-owners are not to be judged by tests and standards, and ways of reasoning, applicable to other subjects, or to men in the ordinary interdependence of other states of society.

Here is a glance at the dwellings and costume of the slaves, which will help to give a little vitality to the discussion of their prospects:—

"The dwellings of the slaves which we have seen from the railway seem in fit keeping with their clothing. As far as such a passing glance can inform one, they consist of a log hut of one apartment, with a brick chimney outside, a door, and an aperture with a wooden shutter for a window. They resemble considerably the poor *châlets* on the Swiss table-lands, where they drive their cattle to in summer. Altogether, taking into consideration the difference of climate, they seem to me much on a par, as to comfort, with the hovels of our Highland cottiers. Most undoubtedly they are very, very far beneath the comfortable cottages, or 'flats,' which contain the decent labourers of Scotland. The clothing of the slaves is generally of a uniform make and colour; a uniformity which gives them, to an English eye, more the appearance of convicts than of labourers."

Of the social features touched upon by Mr. Stirling one of the most curious is the hotel-life of the States. First, the kind of accommodation supplied. The hotels are more "like huge barracks than the cosy place of entertainment" in which an Englishman delights to take his ease:—

"In the St. Charles Hotel, New Orleans, this season, the greatest number of guests sleeping on any night was 725; the greatest number dining on any day was 850. There are 650 beds, and 270 servants. About one-third of the guests are permanent boarders, who remain from three to five months. About one-third of the boarders and guests are planters and their families. The remainder are principally business people, and a small proportion are ordinary travellers. The servants of the establishment do not sleep or eat in the house, and are not included in the above numbers as sleeping or dining in the hotel.

"The 'United States' Hotel at Saratoga, with the connected premises, covers six acres of ground. It contains 800 beds. There are 175 male and 75 female servants; and it occasionally accommodates as many as 1200 guests at one time."

And next, the effect of the life that is led in these places:—

"In every sense I think it bad. It destroys all sense of domesticity, and increases that excitement which is the bane of American life. It tempts the men to loaf about the lobbies and bars, smoking, dram-drinking, and disputing. In the women it encourages an idle, gossiping disposition, even where it does not foster a love of still more dangerous excitement. And as for the children, the poor children! for them it is sheer ruin. What can possibly be conceived more pernicious for a precocious, excitable American child than the glare, hurry, noise, and dissipation of a New York or New Orleans hotel! The poor infant is *blasé* before it is well born; corrupted and used-up before it has left its nurse's apron string. I have seen infants of three and four years of age playing about the corridors of a New York hotel till nine and ten at night, while their parents were perhaps absent at a ball or an opera, and their black nurses were philandering with the Irish waiters. Need we wonder that the precocious *roué* takes to drams and cigars while yet a boy, and dies of old age before he reaches manhood?"

With another characteristic specimen we must dismiss this volume. Mr. Stirling is here describing the well-known love of finery in America, and tracing it to its cause:—

"The ladies of New Orleans, like their sisters of New York, are great dressers; indeed the dresses of American women generally, at least of the new-rich class, are something fabulous in expense, taking into consideration the rank and fortune of the wearers and their husbands. The dresses of ladies in New Orleans, I am told (and by New Orleans people), often equal in richness and expense those of our crowned heads in Europe. What do you think of a creole lady's dress powdered over with diamonds? her husband probably a cotton broker! Ladies here think nothing of expending a large proportion of the profi'ts of a year's trade in a few dresses. Of course we must suppose that this is, in most cases, done with the knowledge and approval of the husband. He works, or speculates, and his wife wears the *spolia opima*.

"There is some excuse, or at least explanation of this, to us, astounding extravagance, in the circumstances explained above of American housekeeping. As a rule, the inhabitant of an American city does not keep house. He has no opportunity, therefore, of displaying his wealth, as our parvenu merchants and manufacturers do, in fine houses; plate, and equipages. Neither is there the same passion for landed estates in America as with us. With land at five shillings an acre, its possession cannot confer social distinction. The New York stock-jobber does not lay out 100,000*l*. on land at two per cent. to give him the *entrée* to the houses of half-a-dozen neighbours, who drink his claret and laugh at him. He is making probably 50, perhaps 100 per cent. per annum on his capital; and all this fast-gotten gain he can only display to the public in one way, by clapping it on his wife's back. An American's wife is the peg on which he hangs out his fortune: he dresses her up that men may see his wealth: she is a walking advertisement of his importance, the 'sandwich' announcing to Broadway or Canal-street that her husband is a man of money and station. All this is very sorry work, but I do not see that it involves any greater absurdity than those displays of plate and upholstery, by which our rich vulgarians announce their wealth and hide their want of real refinement. If a sham gentility is to be set forth, it matters little whether it be done through the instrumentality of the upholsterer or the milliner. The Englishman loves his house, and he decks it out when he makes money; the American loves his wife, and decks her out for want of a house. Neither have much to boast of over the other; it is the same vulgar ostentation in different forms."

In drawing this comparison between the vulgar ostentation of the two countries, Mr. Stirling forgets that in England it is exceptional, and in America universal, or nearly so. The reason lies on the surface, but the fact is not, therefore, the less necessary to be kept in view.

Farina: A Legend of Cologne. By George Meredith, Author of 'The Shaving of Shagpat.' Smith, Elder, and Co.

It is a great point gained to establish a right to some speciality in literature. It is like

securing a good crossing, or an eligible corner for "taters, all hot!" Mr. Meredith has made the furniture of the toilet table his own —razors and eau de Cologne bottles inspire his muse. The history of a memorable shave was his first introduction to the public; he now solicits a continuance of their favours while he relates the glories of the fragrant water of the City of the Three Kings, and the Eleven Thousand Virgins.

We have often admired the quaint signature of the great artist, Johann Maria Von Farina, which attests the genuineness of the fragrant fluid contained in those little octagonal bottles to be seen on every dressing table "from Indus to the Pole;" but we little dreamt of the romantic interest attached to that name. That Johann Maria must be a wealthy man we never doubted, considering the immense request in which his speciality is held; but we had no idea that the secret of the composition of the celebrated perfume reached far back into the middle ages, when bold barons used to ride into capital cities in broad daylight to carry off burghers' daughters, and Sathanas in bodily shape held pitched battles with monks, *à la claire de la lune*. What immense revenues must the Farina family have amassed during so many hundred years of the successful manufacture of the sweetest of essences! How sweet, too, must that money be which has been gained by the sale of this most delicate perfume, when even that which Vespasian obtained from a very different fluid had no disagreeable odour!

It seems, then, that some time in those middle ages, which are the scapegoats of modern society, a certain monk, named Gregory, had a battle near Cologne with the foul fiend. The latter was overcome and took to flight; but as he sunk into the earth in the midst of the square before the cathedral, he left such a terrible stench behind him that the air of the city became infected. So unusual a thing as a bad smell in a German town excited the horror and amazement of the people. The Kaiser Heinrich, who was about to visit the city, was almost obliged to forego his purpose; when a youth named Farina was introduced into his presence, and offered to bear him harmless to the very spot itself where the foul fiend had left his noisome "Forget-me-Not." While all the courtiers fell overpowered from their saddles, the emperor, the youth Farina, and a certain burgher named Groschen, with his beautiful daughter, "The White Rose of Cologne," suffered no inconvenience. They were each armed with a flask containing a mysterious liquid which the youthful Farina had compounded in his laboratory, while all the world had supposed that he was looking for the philosopher's stone. The stench yielded at once to a plentiful application of the newly discovered antidote to diabolical effluvia, and the Kaiser rewarded the sweet-smelling youth by giving him the hand of Gretchen Groschen, the White Rose of Cologne, whom Farina had rescued from the clutches of a brutal Baron Von Werner, a marauding nobleman of the true mediæval type.

This is the substance of the legend; but Mr. Meredith has intertwined with it the episode of the rape of the beautiful Gretchen, of her rescue by the odoriferous Farina, assisted by an English friend named Guy the Goshawk, who fights the ogre of a baron single-handed on his own hall table, and is assisted by the "Water Lady," a moral and avenging spirit who carries off luckless Don Giovannis when the tide turns against them.

This is, on the whole, not a bad extravaganza, though there is a desperate effort throughout to be funny. This was all very well in 'The Shaving of Shagpat;' but mediæval legends have been made to do duty so often in this line that we are a little tired of them. As in 'Shagpat,' the story is helped on by snatches of verse in the "Davie Gellatley" style, and many of them are very good. We must not dismiss Mr. Meredith without an example of his somewhat free and jovial manner. The Aunt Lisbeth who figures in our extract is an old maid who has experienced some rough treatment from Baron Werner's followers while they have been carrying off her beautiful niece for their master.

"The Goshawk was Farina's bridesman, and a very spiriting bridesman was he! Aunt Lisbeth sat in a corner, faintly smiling.

"'Child!' said the little lady to Margarita when they kissed at parting, 'your courage amazes me. Do you think? Do you know? Poor sweet bird, delivered over hand and foot!'

"'I love him, I love him, aunty! that's all I know,' said Margarita: 'love, love, love him!'

"'Heaven help you!' ejaculated Aunt Lisbeth.

"'Pray with me,' said Margarita.

"The two knelt at the foot of the bridebed, and prayed very different prayers, but to the same end. That done, Aunt Lisbeth helped undress the White Rose, and trembled, and told a sad nuptial anecdote of Höllenbogenblitz, and put her little shrivelled hand on Margarita's heart, and shrieked.

"'Child! it gallops!' she cried.

"'Tis happiness,' said Margarita, standing in her hair.

"'May it last only!' exclaimed Aunt Lisbeth.

"'It will, aunty! I am humble: I am true;' and the fair girl gathered the frill of her nightgown.

"'Look not in the glass,' said Lisbeth; 'not to-night! Look, if you can, to-morrow.'

"She smoothed the White Rose in her bed, tucked her up, and kissed her, leaving her as a bud that waits for sunshine."

An Elementary Course of Botany. By Arthur Henfrey, F.R.S. Van Voorst.

BOTANY has made wonderful progress since the time when the manuals of Professor Willdenow, or of Sir James Edward Smith, formed the best introductions to the *amabilis scientia* of Linneus. These were the text-books in common use in our young days. In systematic botany the works of De Candolle and Jussieu, and Hooker and Lindley, mark epochs of advancement, according with the progress of science and the extension of geographical discovery. In vegetable physiology the onward steps have been not less remarkable, and the microscope has latterly contributed amazingly to the knowledge of structural botany. The geographical and geological distribution of plants is also a department of comparatively recent development. From these and other causes it has been necessary to reconstruct the elementary manuals of the science, and to provide new helps to its study. Of late years many elaborate and philosophical treatises have appeared, both on the Continent and in this country, embodying the researches and discoveries of recent times. But most of these works have the disadvantage, for general use, of dwelling too minutely, at the outset of the study, on the abstract parts of the science. By far the largest proportion of students of botany are those who pursue the subject as one included in the prescribed courses of medical education. It is not only professionally useful as an introduction to Materia Medica, and as part of scientific training, to require some knowledge of this branch of natural history, but also it is expected that medical officers, many of whom will spread over the world in the public service, should be able to contribute to the advancement of botanical science. Comparatively few find leisure for carrying out the microscopical researches and minute physiological studies, to which attention has been perhaps too largely directed during the short period allotted to this branch of their professional education. The consideration of this error has led Professor Henfrey to construct his manual with a view to more general utility. His experience as a teacher has confirmed his views in this matter. Ten years ago he published 'Outlines of Structural and Physiological Botany,' intending to follow it up by a second volume devoted to Systematic Botany. Since that time he has found that the method and arrangement of study in common use were not the best adapted for the public service, and as the science has also made rapid advances in all its branches, he now presents a volume including a general view of Structural, Physiological, and Systematic Botany, which, without any depreciation of other works of the class, we can safely recommend as the best elementary text-book that has yet appeared. Professor Henfrey's name is sufficient guarantee for the philosophical spirit and scientific accuracy of the work, while his experience and sagacity as a teacher have enabled him to adapt his manual to the general wants of the majority of botanical students. Those who have taste or leisure for following up any special department of the science will be prepared for doing so by this text-book, which at the same time contains all that is most essential for others who must make their botanical studies secondary to their ordinary pursuits in life.

The work commences with Morphology, or the Comparative Anatomy of Plants, and this part of the volume gives a lucid and comprehensive summary of the present state of knowledge on the subject. Part Second treats of Systematic Botany, in which, after preliminary chapters on the principles and the system of classification, a systematic description is given of the natural orders. Part Third treats of Vegetable Physiology, and the concluding portion of the volume of Geographical and Geological Botany, a comparatively new and most interesting field of study. The chapter on the Statistics of Vegetation affords some curious illustrations of the progress of botanical knowledge:—

"Theophrastus (390 B.C.) enumerated 500 kinds of plants, and Pliny (A.D. 79), in his 'Historia Naturalis,' increased the number to double. The researches of the Greek, Roman, and Arab naturalists made known no more than 1400 species, and even in the beginning of the seventeenth century the discrimination of the different kinds had only raised the number of distinguished forms to 6000, as we find from Lobel and J. Bauhin. The second edition of Linneus's 'Species Plantarum' (1762) contained no more than 8800 species; Murray's edition of the 'Systema Naturæ' only 10,042 species, including the Cryptogamia.

"Willdenow's edition of the 'Species Plantarum,' the publication of which extended from 1797 to 1807, described 17,457 species of flowering plants, and, adding the Cryptogamia, we obtain the number, 20,000, mentioned by him. Since that time the number of known species and the estimates of the probable number existing have

increased very rapidly. R. Brown ('General Remarks on the Botany of Terra Australis') counted above 37,000 Phanerogamia; and Humboldt ('De Distributione Geographica Plantarum') spoke of 44,000 plants, Phanerogamous and Cryptogamous, at the beginning of the present century.

"De Candolle ('Essai Elémentaire de Géographie Botanique,' 1820) next calculated that the writings of botanists and the various European collections of dried specimens, might be assumed to contain, together, upwards of 56,000 species of plants. In 1820, however, the number of species in the herbarium of the Jardin des Plantes was estimated at the same number, and the collection of M. Benjamin Delessert of Paris was supposed to contain at the time of his death, in 1847, as many as 86,000 species, a number which, about ten years previously, had been conjectured by Lindley to represent the whole of the species existing on the globe ('Introduction to Botany,' second edition, 1835.) The Royal Herbarium at Schönberg, near Berlin, is estimated by Dr. Klotsch to contain 74,000 distinct species.

"Humboldt ('Aspects of Nature') has entered into some interesting calculations to prove how far all these figures fall short of the number of species of plants which may be supposed to exist. The number of species of flowering plants named in Loudon's 'Hortus Britannicus' (1832), as at that time, or within a moderate period before, cultivated in Britain, was 26,660; the catalogue of species actually under cultivation in the Berlin Garden, carefully prepared by Kunth, gave rather more than 14,060 species, 375 of which were Ferns, leaving 13,685 flowering plants. Among these the following important Orders were represented: the Compositæ by 1600 species, the Leguminosæ by 1150, the Labiatæ by 428, the Umbelliferæ by 370, the Orchideæ by 460, the Palms by 60, and the Grasses and Cyperaceæ by 600 species.

"When these numbers are compared with those of the species of their Orders described in recent works, we find that this Garden contains only 1-7th of the Compositæ (about 10,000, De Candolle and Walpers), 1-8th of the Leguminosæ (8068), and 1-9th of the Grasses (Grasses 3544, Cyperaceæ 2000, Kunth), and of the smaller Orders of Labiatæ (2190) and Umbelliferæ (1620), about 1-5th or 1-4th.

"Supposing all the flowering plants cultivated at one time in all the botanic gardens of Europe to amount to 20,000, and assuming from the foregoing comparisons that the cultivated species amount to about the eighth of those described and preserved in collections, the latter would amount to 160,000 species. Large as this number is, it will scarcely be thought excessive, when we recollect how small a proportion of many large Orders are to be found in our gardens, scarcely 1-100th part, for example, of the Guttiferæ, Malpighiaceæ, Melastomaceæ, Myrtaceæ, and Rubiaceæ.

"If we apply this mode of calculation to the number of species given by Loudon (26,660), the estimate of 160,000 rises to 213,000 species; and this is still moderate, since Heynhold's 'Nomenclator Botanicus Hortensis' of 1846 rates the cultivated flowering species at 35,600."

These deductions, based on Kunth's inferences, refer to the species that have been described and are now existing in herbaria. It remains to estimate the whole number of species upon the globe, judging by the proportion under the cultivation of art and the examination of science. The following statement exhibits the principle on which the calculations are based:—

"Walpers' 'Repertorium,' supplementary to De Candolle's 'Prodromus,' brings the number of Leguminosæ up to 8068 species in 1846. The proportion of the number of the Leguminosæ to that of the entire Phanerogamous flora is 1-10th within the tropics, 1-18th in the temperate, and 1-35th in the north frigid zone; so that we may assume the mean proportion of this family to be 1-21th. The 8068 described Leguminosæ would therefore lead us to suppose that there existed only 169,400 species of flowering plants upon the surface of the globe, whereas the Compositæ, as stated above, indicate, by Kunth's mode of deduction, more than 160,000 already known species.

"Of the Compositæ, Linneus was acquainted with only 785 species, while 10,000 are now known. The greater part of these appear to belong to the Old World, De Candolle describing only 3590 American, with 5093 for Europe, Asia, and Africa. But this seeming abundance of the Compositæ is to a certain extent deceptive and only apparent. The proportions of this Order are —1-15th between the tropics, 1-7th in the temperate, and 1-13th in the frigid zones, giving a mean of 1-12th, which shows that even more species of Compositæ than of Leguminosæ have escaped investigation hitherto, since a multiplication by 12 would give us the improbably low number of 120,000 Phanerogamia.

"The Grasses and Cyperaceæ give still lower results, as comparatively fewer still of these have been collected and described. The mean proportion of the Grasses seems to be about 1-12th. Taking the number of known species of plants according to the above calculations at 160,000 or 213,000, the Grasses ought to amount to 13,333 in the first case, and 17,750 in the second, while only either 1-4th or 1-5th of these numbers is known. When we reflect what enormous extent of plain still remains unexplored in almost all parts of South America, and in Northern and Central Asia, this deficiency does not appear extraordinary; and indeed it becomes by no means difficult to believe that we are so deficient of knowledge of species of Grasses, that the total number of flowering plants might be taken at double the number known, which would lead to the conclusion that only 1-8th or 1-10th of the Grasses had as yet been discriminated."

De Candolle, in his 'Géographie Botanique,' has attempted to calculate the entire number of species on a different principle. He assumes Germany as an area with an average set of conditions, and taking the mean area of a Phanerogamic species at about $\frac{1}{60}$ of the surface of the globe, a proportion that holds good in many cases, he multiplies his selected German area to that amount. In Germany the number of species of flowering plants is 2,500, which, multiplied by 150, gives 375,000 as the number of existing species of Phanerogamic plants. In all these estimates it is taken for granted that the plants described in particular floras are distinct species. Dr. Hooker in his Indian Flora, and in the Introduction to his 'Flora of New Zealand,' has dealt with this question in a most philosophical and masterly way, and we agree with him in thinking that the number of alleged species is greatly exaggerated. In Germany especially the laborious closet naturalists are prone to multiply species, and do not take into due account the influence of climate and habit in causing varieties widely diverse in appearance and even in structure. The results of these and other controversies are presented in Professor Henfrey's manual. It was by his lamented predecessor in the chair at King's College, Edward Forbes, that the attention of naturalists in this country was first directed to these inquiries, so important in their bearings on other departments of physical science. Professor Henfrey has worthily followed in the same path, and it is satisfactory to know that the students of botany at one of our great metropolitan schools have the advantage of tuition so able and philosophical. Professor Henfrey's book, we must not omit to mention, is illustrated by upwards of five hundred woodcuts, and a copious index is also an acceptable portion of a volume consisting of seven hundred pages.

True to Nature. A Novel. Hurst and Blackett.

THE office of pronouncing judgment on the merits of a book is usually left to the reader; but in this case the author himself has assumed it. In his title he tells us that his novel is "true to nature," almost the highest praise he could pronounce upon a work of fiction. He passes the same panegyric on his novel, by implication, in his motto taken from Molière:—

"Lorsque vous peignez les hommes, il faut peindre d'après nature: on veut que ces portraits ressemblent; et vous n'avez rien fait si vous n'y faites reconnaitre les gens de vôtre siècle."

We should recommend to the perusal of the author of 'True to Nature,' the lines of another French critic, Boileau:—

"Un sot, en ecrivant, fait tout avec plaisir:
Il n'a pas en ses vers l'embarras de choisir;
Et toujours amoureux de ce qu'il vient d'écrire,
Ravi d'étonnement, en soi-même il s'admire."

We cannot help thinking that the author would have done better if he had followed the common custom of expressing in his title the principle which he wished to inculcate, or the scenes which he was about to depict, and leaving it to the public to declare whether he had succeeded or not. The very presumptuous title which he has chosen can have no other effect than to prejudice the reader against the book. We shall not, however, suffer ourselves to be provoked by his lack of modesty and good taste in this particular, so far as to forget that impartiality which we are bound to maintain in the performance of our duty to the public.

'True to Nature,' notwithstanding its offensive name, has one great excellence to recommend it. The story is not made to fit the Procrustean bed upon which novelists generally stretch their conceptions. The narrator finds that he can say all he has to say in two volumes, and he does not spin it out into the conventional three. We trust that, in this respect, we shall soon learn to imitate the French, who have no fixed standard for measuring the length of a work of fiction.

Its next excellence is that it is free from vulgarity. After reading the first few pages we had serious misgivings as to what was before us in this respect. The following frightfully aristocratic description made us dread many a scene of high life in the Belgravian lady's-maid style:—

"Lady Montagu sat in the oriel window of her room, dressed in a gown of pale grey silk, softened by a cloud of wonderful old family lace. Her eyes were lit up by a tender holy expression, and there was a faint tinge of colour in her usually pale cheeks, as she bent over Margaret, who was kneeling by her mother's side when Sir Hugh entered."

As we read on, we were not repelled by any offence against good taste or good feeling. The aristocratic element never becomes so obtrusive as to suggest the suspicion that the writer knows nothing of that society which he endeavours to portray. But we are utterly at a loss to discover the points upon which he relies for substantiating his claim to being pre-eminently "true to nature." As far as we could see, the old stock characters and the old stock incidents which we have been accustomed to meet with any time this last twenty years, reappear with the regularity of clock-work. They may be "true to nature;" but they might have been

produced by a careful study of books, without any reference to nature at all. There is the baronet of the old school, a staunch tory, a kind father, though somewhat testy, and an excellent country gentleman, the terror of gipsies and vagrants; there is his prodigal son in the Guards; the woman of the world, who lives in Eaton-square, and snubs her less fortunate sister for dressing like a dawdy; there is the vulgar manufacturer and his friends, who make havoc with their h's; the briefless barrister who marries a charming, romantic, artless girl for love, and at length discovers that to find a balance of 20*l.* at your banker's when only two months of the half-year are passed, is a serious bar to domestic felicity. The stage villain is reproduced as usual; and the prophetic gipsy, and the haughty beauty whose heart has never been touched by the gay butterflies who hover round her; and the still more haughty soldier, who has swallowed a poker and never been able to digest it, but who falls in love with the haughty beauty; and there is her disappointed rival, who "lets concealment," &c., and finds relief at length in religion and the duties of auntship. Finally, there is the rich old bachelor, who dies in the nick of time, and leaves his splendid castle and fortune to the struggling young couple, just as the butchers and bakers can wait no longer for their little accounts. In these good old characters of the domestic novel, there is surely no proof that the author has drawn large draughts of inspiration fresh from nature.

But if there be little novelty in the characters, there is still less in the incidents. The romantic young people marry, as usual, on seven hundred a-year, and find it very hard to make two ends meet, but finally receive the reward of their disinterestedness in the shape of a charming old mansion in the country, and as many thousands a year as they had had hundreds. Here there *is* a touch which, "we are free to confess," is true to nature; the briefless one finds hunting and shooting over his own estate much pleasanter than reading the laws which regulate the estates of other people. The villain lures the innocent guardsman to his destruction, forges a letter which breaks off the engagement between the happy lovers, and attempts to destroy the will which bequeaths the property to the struggling young couple, and when all his villany is discovered flies to Italy, repents, and becomes a Roman Catholic. This is strictly *selon les règles*. A mild form of Protestantism does well enough for your jolly baronet, with ten thousand a year and no sins on his conscience, except such as are contracted at Eton and Christchurch, and a few seasons in London and Florence; but nothing short of Popery is strong enough for your thorough-paced but penitent villain, whose grave must be a humble stone inscribed with a simple cross and the villain's initials. Is there not something of this sort in 'Lara?'

Then there is the usual misunderstanding between the haughty lovers, and the rescue from a watery grave, which sets all right again; and the departure of the old family from the hall of their ancestors, while the gipsy points exultingly to the setting sun; and the vulgar dinner party; and the season in London; and the duel; and the tour of the disappointed ones through Italy; and the death of the kind friend with all the thousands a year; and the discomfiture of wickedness and the reward of virtue; and the final kissing and making friends, and living together "as happily as I hope you and I may." It is the old story, but it is very pleasantly told. It will please those who delight to be told (because it is *not* "true to nature) that love in a cottage, and virtue and elegance, always meet their reward. We only wish it *were* "true to nature" for the owners of splendid parks to die just at the nick of time, and leave their properties to those who most want and could best enjoy them.

We have spoken of the author of this novel in the masculine gender, but we have a strong opinion that the book is written by a lady, notwithstanding a somewhat ostentatious display of a knowledge of the society which meets at "the Garrick," the introduction of a duel, and some other masculine scenes. Its faults and its excellences are alike feminine. There is a certain refinement of style and thought, and a knowledge of the feelings of women which men do not possess; but there is also a vagueness and feebleness in the outline of male characters which betray the author's sex. No one but a woman would suppose that the stiff starched Colonel Disbrowe was "true to nature," or would think such a ridiculous person a hero if he did exist. Men know themselves and each other too well to believe that any man can keep his head in the clouds for any length of time. The character is not *in rerum naturâ;* and if it were it would not be a virtuous character.

German Love. From the Papers of a Stranger. [Deutsche Liebe, &c.] Leipsic: Brockhaus.

THIS beautiful book belongs to that exquisite but difficult species of composition, the psychological romance. To a considerable extent, indeed, the greater part of the imaginative literature of our day partakes of this characteristic, but the term may be advantageously restricted to books devoted either to the exhibition of a particular character, like 'The Nemesis of Faith,' or the embodiment of an exceptional mood, like 'In Memoriam.' 'Deutsche Liebe' is, indeed, far from displaying the overpowering tragicalness of the first, or the mournful enchantment of the latter of these works. It communicates no electric shock to the weakest nerves, and will purvey no mental epicure with the luxury of grief. It is simply a record of emotions natural to any person of sensibility, narrated in a truthful, quiet, and unembarrassed way. Passionate without vehemence, gentle without tameness, pathetic but in no respect morbid, it neither aspires to nor will attain a very extensive popularity. Like the song of the nightingale in Shelley's poem, it will mix with the dreams of none but sensitive plants.

We have called it a romance, but feel doubtful whether there is plot enough to make it one. In fact, any very careful or artistic construction seems at variance with the genius of this species of composition. Such a structure of incident implies contrivance, and contrivance is as alien to the pure impulse whence the self-revelations of the soul should arise, as is the artificial fountain, gracefully tossing itself into a polished basin, to the mountain spring, the direction of whose waters may be originally due to the accidental interposition of a flint or a tussock of grass. We do not mean to imply that 'Deutsche Liebe' is in any way inconsistent or incoherent. This might have been the case with the work of a more impassioned genius; but our author's clear and symmetrical mind is an Amphion at whose bidding all thoughts, though they may have rushed into being as suddenly as the brazen men of Cadmus, lay aside the flush and fervour of their birth, and arrange themselves into perfect though undesigned harmony. And we cannot well read without acknowledging that this fair group of fancies chaste and noble owns a bond of union more intimate than the merely mechanical one of their birth in the bosoms, and utterance by the lips, of two standing to each other in the relation of lovers unconfessed, and to the reader in that of hero and heroine. We take this leading sentiment to be that so touchingly expressed by Emerson—"It does not seem to me so sad that Macbeth should kill Duncan, as that Torquato and Antonio should wish to be friends, and not be able to understand each other."

Two grow up together, in stations of life different indeed, yet not too different to prevent their being playmates and companions. The foundations of affection are laid by their being, as the poet has it, "conjoined in disparity." Each has what the other has, and something that the other has not. There is mutual elevation of thought, refinement of intellect, purity of heart. Each can supply something of the other's deficiencies. Frail, delicate, ethereal, the fair invalid seems to her friend something higher and purer than himself, standing so much nearer to the invisible world. On the other hand, the blithe ardent youth impersonates all the maiden's dreams of energy, enterprise, and the activity that seems so enviable to the sufferer. Hence a beautiful friendship, but how hard to be friends and nothing more! Yet it soon appears that the sole choice lies between nothing more and much less. The active and contemplative natures cannot coalesce; they breathe a different air, and live by a different law. It is as when an Alpine rivulet blends with an Alpine lake; at first one seems lost in the other; but the decrees of nature admit of no contradiction; river cannot be lake, or lake river; they part, and while one remains in the tranquillity of old, the other finds a reluctant outlet, and goes slowly winding a regretful way. Suppose this outlet obstructed, and the passing river retained in the lake's bosom, it is clear that the result must be an inundation effacing the form of both waters at once. So with our lovers, the active will asserts its practical superiority, and subjugates the instinctive scruples of its meek companion. But the strain is too great, the prospect of a new life too overwhelming, the fragile organism goes to pieces, and the triumphant suitor is left like a child weeping at the end of an eager chase, a crushed butterfly in his hand.

Such is an imperfect outline of the subject of this affecting story. Those who are so fortunate as to have read and appreciated 'Preciosa,' will at once perceive the remarkable—though we are convinced entirely accidental—resemblance of the two works. It is true that in the English story the characters of the principal personages are reversed; the hardy alert Lucy bounds with life and its enjoyment; it is Edward who walks with melancholy and sits down to meditation. Our countryman's touch is firmer and his description truer, his tragic power more deep, and his characters

more varied. On the other hand, his story is more painful than 'Deutsche Liebe,' and evinces less amiability of feeling. But comparisons are invidious where each book offers so much to admire. The difference is rather national than individual, and to balance spirits so nearly akin against each other, is scarcely more rational than to discuss whether it be better to repose under the shade of an oak or of a lime.

Collectanea Antiqua. By Charles Roach Smith. Vol. IV. Printed for the Subscribers.

THE most interesting contributions to this volume are those relating to sepulture. A paper, by M. Auguste Moutié, read before an Antiquarian Society in France, but not previously published, gives a graphic account of the discovery and exploration of Frankish sepulchral remains in the arrondissement of Mantes and Rambouillet, in the department of Seine and Oise, at a short distance from the town of Houdan. This district is rich in antiquities of the Celtic, Roman, and Merovingian periods. It came early under the dominion of the Franks, and the two vast cemeteries now described prove it to have been a favourite settlement with that people. One of the cemeteries is near the village of Maulette, to the north-east of Houdan, somewhat on the right of the high-road from Paris to Brest. It was discovered some years ago, and unfortunately did not engage the notice of any antiquary until the most valuable objects had been destroyed or dispersed. The second cemetery is to the north-west of Houdan, on the right of the road thence to the village of St. Lubin de la Haye, on the slope of a very prominent hill called Butte des Gargans. The discovery was made accidentally in opening a stone quarry, also some years since. M. Moutié, on hearing of the remains that had been found, purchased the ground, and proceeded to a leisurely and systematic exploration. The cemetery is of large extent:—

"The tombs are in regular rows, closely placed alongside each other, at a depth varying from two to four feet. The surface soil is not more than from twelve to sixteen inches deep, and the graves are excavated, for the most part, in the solid chalk which lies above the limestone bed worked by the quarrymen. They are generally about six feet six inches long by two feet two inches broad. The bodies are regularly deposited upon their backs, with their faces turned toward the east. The head almost always is found lying on a flat stone, and the rest of the body covered with the fragments of a kind of shelly limestone, and the *débris* thrown out in making the grave. These stones are not found here, and must have been brought by the relatives of the deceased, or the parties charged with the interments. The long iron nails usually met with at the angles of the graves, to the number of four or six, lead us to presume the bodies have been deposited in wooden coffins. I have not, however, succeeded in discovering any fragments of wood; but the soil is alternately so dry and so wet, that all vestiges of wood would speedily vanish.

"In a great number of these graves, vessels, arms, clasps, fibulæ, buckles, and various other objects we shall proceed to describe, are found with the bodies. It, however, frequently occurs, that the skeletons alone are found, whether it be that the substance of any things deposited has not resisted the natural effect of time, or that no deposit was ever made. A single example was noticed of two bodies being deposited in one grave, side by side. The decomposed condition of the bones did not permit us to ascertain the sexes; but an iron axe and a spear, laid between the two bodies, prove that one, at least, was that of a warrior.

"Only one tomb of plaster has been found, which contained a skeleton similarly interred, with the head lying on a large fragment of a curve-edged tile."

In the Fairford graves, explored by Mr. Wylie, similar layers of stone, which had, however, been in the fire, were found above the bodies. At the Butte des Gargans M. Moutié affirms that cremation was also practised at the same period as inhumation. This is said to be proved by the discovery of two graves, about six feet and a half square and three feet and a quarter deep, in the middle of all the rest, but far apart from each other. They merely contained a mixture of cinders, calcined bones, *débris* of vessels of earthenware and glass, melted bronze, and numerous fragments of shapeless and rusted iron. These are supposed to be the *ustrina*, or spots devoted to the burning of the bodies. Mr. Roach Smith remarks that these may probably have been the places where the funeral festivities and sacrificial ceremonies were held, and the remains afterwards buried. Detailed descriptions of several of the tombs, and of the objects found in them, are given by M. Moutié. The discoveries throw valuable light on the monumental history of the Merovingian period. Another paper in the 'Collectanea' contains an account of the graves of the Alemanni, at Oberflacht, in Silesia, of which a description was printed some years ago in the Memoirs of an Antiquarian Society of Stuttgardt, no copy of which has probably found its way to England, and the subject has therefore novelty to English antiquaries. Mr. Wylie, in the 'Archæologia,' vol. xxxvi., first made known in this country the discovery of these Teutonic remains, as made by Capt. Von Dürrich, of the Würtemberg Engineers:—

"We find no traces of cremation. The rite of inhumation was pursued in two ways, both having singular regard to the preservation of the corpse. The more prevailing mode seems to have been, to fell a massive oak, cleave the bole into nearly equal parts, and hollow out the interior for a sarcophagus. After the body and the various accompanying relics were placed in this tree-coffin, the two parts were refitted, and firmly pegged together. In the whole of this process no trace of the saw appears. It was managed with the axe or adze alone; and hence it follows that the stems are frequently found unevenly divided. On the outside the bark was merely removed, and the inequalities smoothed off. On the upper part, or lid, of such coffins as contained the corpses of *men*, the crested forms of snakes are rudely carved on the whole length in full relief. In some cases, the stems of pear-trees have been used, and have always been found in a very decayed state. These tree-coffins were mostly found at a depth of from four to five feet.

"The other description of interment was on a couch or crib, the framework of which consisted of four posts, connected by a tastily-carved wooden rail. On one occasion, this death-couch was divided horizontally into two stories; while another, not less than eleven feet and a half in length, was found to be divided into three compartments. Another was furnished with a covering like a gable roof, on the ridge of which the usual guardian snakes were carved. The bodies lay with the heads to the west. The smaller coffins were found merely lying in the clay, and were generally in a state of decay. Those of a better class, however, were protected from the incumbent soil by a covering of massive oaken planks. The richer interments were completely cased, as though in a chest, with massive oak trees. In several graves the roofing was higher at the extremities of the interments than at the middle, apparently for the purpose of more effectually protecting the serpents' heads carved on the coffin lids. The wood has generally become hard and black like ebony."

The wooden coffins and numerous articles of wood being in perfect preservation, owing to the imperviousness of the clay soil to air and moisture, these graves afforded objects rarely met with in early sepulchres. Mr. Wylie has the following remarks on some of the more remarkable relics:—

"In the Lupfen neighbourhood, the coffins of common use still bear the old appellation of *todtenbaüme*—literally, 'trees of the dead.' It is even now not unfrequently the custom to inter the dead in their usual attire; and, till very lately, with many a favourite object of their household stuff. So long will old heathen observances linger on in a rustic district! Lastly, the inhabitants of the Black Forest itself, still greatly affect the use of wooden bowls and platters, and maintain their reputation as expert carvers and turners in wood. The graves present us with an interesting summary of the fruits which flourished in the valley at this early period. The peach was no doubt a rarity, for we find the solitary peach-stone fitted with a shank, and worn with beads on a necklace. The wooden shoes Dr. Menzel considers as representing the mythological *todtenschuh*, or death-shoe of the ancient funeral rites. The old northern mythology supposed departed souls had to encounter great difficulties and inconveniences on their way to the spirit-land. In fact, they had to pass through just such an uncomfortable Valley of the Shadow of Death as John Bunyan alone could depict. It was befitting, therefore, to furnish shoes for so disagreeable a journey. Such shoes were termed in Germany, *todtenschuhe*, or 'dead men's shoes;' in Scandinavia, *helske*, or shoes for Hela—*i.e.*, Hell, or Hades. A very positive account of this singular custom exists in the Gisla Sursonnar Saga, and runs thus:—On Vestein's death by the hand of Thorgrim, as they were preparing the body for burial, Thorgrim drew near and said, 'It is the custom to furnish men with death-shoes to tread their path to Valhalla—this office I will render to Vestein.' This done, he added, 'I know not how to bind on the death-shoe if these come undone.'"

The remarkable contents of these tombs are quite new to the archæologist as regards the constructions, implements, and various objects in wood and in other perishable materials; and they supply most interesting details illustrative of the funereal customs of the Teutonic nations. But with our present circumscribed information, attributing them to the Alemanni in general may be premature.

In an appendix Mr. Roach Smith concludes his record of the proceedings in connexion with his Museum of London Antiquities, which fortunately now forms a part of the great national collection. The sum of 2000*l.*, it will be remembered, was finally agreed upon for the purchase, and though a higher estimate had been placed upon it by competent judges, Mr. Roach Smith acceded to the proposed sum with a readiness highly creditable to his antiquarian zeal and public spirit. The preface to the printed catalogue of the Museum contains a brief notice of the history of its formation, and the labours of Mr. Smith, in elucidation of Roman London, have now come to a proper conclusion, in his collection being deposited in the British Museum. The absence of the Faussett Collection will ever be deplored; and the acquisition of Mr. Roach Smith's equally unique museum, which at first was in like danger of being lost to the metropolis, is the more satisfactory.

PUBLICATIONS RECEIVED.

History of the Consulate and the Empire of France under Napoleon. By M. A. Thiers. Translated by John Stebbing, Esq. Vol. XV. Willis and Sotheran.

Transactions of the Ossianic Society for the year 1855. Vol. III. Dublin: Printed under the direction of the Council.

Collectanea Antiqua. Etchings of Ancient Remains illustrative of the Habits, Customs, and History of Past Ages. By C. Roach Smith. Printed for the Subscribers.

India; its History, Climate, Productions, with a full account of the Origin, Progress, and Development of the Bengal Mutiny. By J. H. Stoequeler. G. Routledge and Co.

The Useful Metals and their Alloys. By various authors. Houlston and Wright.

The Geography of Strabo. Translated by H. C. Hamilton, Esq., and W. Falconer, M.A. Vol. III. H. G. Bohn.

A Polyglot of Foreign Proverbs. By Henry G. Bohn. H. G. Bohn.

Farina: a Legend of Cologne. By George Meredith. Smith, Elder, and Co.

True to Nature: a Novel. 2 vols. Hurst and Blackett.

Phrenology made Practical and Popularly Explained. By Frederick Bridges. Low, Son, and Co.

Footprints of Life, and other Poems. By Asager Hay Hill. Cheltenham: H. Davies.

Myra; or, the Rose of the East. A Tale of the Afghan War. In Nine Cantos. By Ella Haggard. Longman and Co.

Dates, Battles, and Events of Modern History. C. J. Stewart.

Cultivated Ferns; or, a Catalogue of Exotic and Indigenous Ferns cultivated in British Gardens. By John Smith, A.L.S. W. Pamplin.

THE precious metals, notwithstanding their vast value and varied utility, form but a small part of the national wealth and power compared with the useful metals—iron, copper, tin, zinc, antimony, lead, and their alloys. To her mineral resources, developed by metallurgic art, and applied by mechanical ingenuity and skill, Great Britain owes most of her superiority in physical power over other nations of the world. The scope and extent of our mineral operations, productive and applied, will be seen in the volume on the Useful Metals and their Alloys, published by Messrs. Houlston and Wright. It consists of a series of treatises on metallurgic mechanics and chemistry, as used in the conversion of the ores of the useful metals, and their employment in the industrial arts. The treatises are all by practical men thoroughly versed in these several subjects. Mr. Scoffern writes on metallurgic chemistry and assaying; Mr. Truran, C.E., author of the 'History of British Iron Manufactures,' on iron and the several processes used in its conversion; of the Mersey iron and steel works; Mr. Clay, on the working of malleable iron, including the details connected with the monster piece of ordnance presented to the nation by the Company of which Mr. Clay is the manager; Mr. Atkin, of the Cambridge-works, Birmingham, on the manipulation and construction of ornamental iron work; and Mr. Oxland, of Plymouth, on copper, tin, zinc, and antimony. Mr. William Fairbairn, of Manchester, contributes a valuable paper on the application of iron to purposes of war, machinery, bridges, and house and ship building; and Mr. Vose Pickett gives a summary of his new system of iron architecture. Various other treatises, as on mining ventilation, mining jurisprudence, steel manufacture, and allied subjects, add to the completeness of the volume as a manual of practical metallurgy. For engineers and miners, and others connected with metallurgic art, the work is one of the greatest practical value, and it contains much matter of interest for the general reader relating to the industrial arts and mineral resources of the country. The volume is illustrated with numerous engravings and woodcuts. No single author could have produced a work so varied in its subject, and authentic in its details, as this volume of treatises by able hands. In the chapter on the use of iron in ordinary architecture there are some interesting facts stated, but it appears that notwithstanding the extent of the iron manufacture of this country, and the comparative cheapness of production, we are far behind the French in its application to buildings and dwelling-houses. With all our boasted skill, we have not yet been able to roll iron beams, nor apply them to the extent that our continental neighbours now constantly do. There is great scope for architects of originality and skill to introduce into more general use this material in domestic buildings, as well as a wide field for ornamental design. It was expected that the construction of the Crystal Palace would have given a stimulus to invention in this matter, and have led to many more directly practical adaptations of iron structures; but British architects are commonly content to follow on in beaten paths, and have not shown the same contrivance and skill that other inventors and artificers have exhibited in the management of the useful metals. At least, it is only in a few public and showy undertakings, not in ordinary domestic architecture, that iron has been turned to the uses of which it is capable.

The Geography of Strabo, who wrote in the early part of the first century of the Christian era, gives a complete summary of the knowledge possessed by the Greeks of the earth's surface and its inhabitants. He lived at Amasia, and there composed his work, but he resided for a time at Rome, probably during the reign of Augustus. His account of the western and northern parts of Europe might have been improved, had he put greater confidence in the records of Roman travellers and writers. He made some use of Cæsar's description of Gaul and Britain; he alludes to the voyage of Publius Crassus, in speaking of the Cassiterides Islands; and also the writings of Asinius Pollio, Fabius Pictor, and an anonymous writer whom he calls the Chorographer; but he might have obtained additional information during his stay at Rome. His own travels had chiefly been in the countries east of the Mediterranean. He mentions having been in Egypt, Cappadocia, Phrygia, Ephesus, Corinth, Athens, and other regions and cities, but his book is principally compiled from the works of the Greek historians and poets, and the geographers, among whom the most noted was Eratosthenes. In style Strabo is spirited and elegant compared with Ptolemy. His book was designed as a popular manual, for the use of persons in the higher departments of administration, and contains historical as well as geographical information, with notices of the people, institutions, laws, customs, productions, and commerce of the various countries described. The third volume of the translation, in Bohn's Classical Library, by the Rev. W. Falconer, M.A., contains the account of the greater part of Asia and of Africa. The chapter on India we have re-perused with much interest, now that attention is absorbed in that region. Strabo's account of the Indus, and the Hydaspes or Jhelum, and the Acesines or Chenab rivers, and the country of Porus, whose name is still preserved in Lahore, formerly called Lo-pore, recalls many associations. The mingled fables and facts about the Brachmans and the other Indian castes, and the customs and manners of the country as observed by the companions of Alexander the Great, are strange contributions to the ancient history of what is now the Eastern empire of remote Britain in the days of Strabo. To this volume is prefixed a prefatory dissertation on Strabo's life and works, and a bibliographical notice of the various editions that have been published.

In preparing his Handbook of English Proverbs, Mr. Bohn was led to examine those of other languages, and he now publishes as a companion volume a Polyglot of Foreign Proverbs, comprising French, Italian, German, Dutch, Spanish, Portuguese, and Danish, with English translations. They are arranged according to the languages, and a common index, occupying a hundred and fifty out of five hundred pages, gives the English rendering of the whole collection. The different selections have been examined by competent linguists, who have revised their own national portions of the work. Many of the foreign proverbs are but transcripts of familiar English saws, and not a few appear in many languages with little variation, but there are others, especially among the Spanish and Danish, which are quite new and peculiar. It is a volume full of interest and instruction for the linguist and the philologist, for the student of human life and of national manners and character.

Phrenology has in this country attracted little notice of late years, or at least has shared its devotees and its dupes with other semi-scientific systems. Founded in truth in its main principles, the art of cranioscopy, or the reading of character by cerebral development, has been found impossible in detail, for the very good reason that the alleged localization of mental faculties in particular convolutions of the brain is a mere conjecture, grossly materialistic in its idea, and utterly unsupported by proof. Even if some relation existed between particular parts of the brain and special functions of the mind, anatomists show that it is impossible to judge with any accuracy of the surface of the cerebrum from that of the skull, the plates of bone not being regularly parallel; and besides, structure and substance of brain is likely to be far more efficacious than mere bulk or size in affecting nervous action. But the art has enough of plausibility and mystery about it to ensure a certain amount of popularity, and to afford scope for the employment of practitioners in pronouncing on character. The treatise by Mr. Frederick Bridges gives an entertaining popular account of the principles and of the practice of the art, with references to many cases of criminals and others, where the cerebral development appears to have remarkably agreed with the character according to the statements of phrenologists.

Lord Eustace Cecil's little Manual of Modern Chronology is a most useful book for students of history. Prepared by the author for his own convenience as a table of reference, it is now published with the view of assisting others in the recollection of dates, and in impressing the more important events of modern annals. As might be expected from a soldier, battles and sieges and other military events occupy a large proportion of the space, but these have formed the staple materials of most histories in all ages and countries. Other important events, however, are not overlooked, and the selection is on the whole most comprehensive and judicious. We have much pleasure in recommending to the notice of teachers and of students this useful and unpretending text-book of modern chronology. The occasional remarks appended to the series of chronicles are brief, but suggestive and appropriate.

No one is better qualified to give a complete and accurate catalogue of the exotic and indigenous Ferns cultivated in this country than Mr. Smith, the curator of the Kew Gardens. A new work is announced by Mr. Smith's chief, Sir William Jackson Hooker, 'Filices Exoticæ,' to appear in monthly parts with coloured plates. Meanwhile the catalogue by Mr. Smith ought to be in the hands of all who are interested in the cultivation of this remarkable and beautiful class of plants. The botanical characters of the genera, the natural habitats of the species, and copious lists of references and synonyms, render the book of value for scientific reference, and a brief introductory chapter gives definitions of terms, and other explanations, which will be acceptable to those who have not specially studied the structure and physiology of the Ferns. The nomenclature of Pteridology is in sad confusion, and it would be well if botanists and horticulturists could now agree to have a commission, formed of British and Continental members, to reduce the synonyms to order.

New Editions.

Lives of the Lord Chancellors and Keepers of the Great Seal of England. By John Lord Campbell, LL.D., F.R.S.E. Fourth Edition. Vol. IX. Murray.

Memoirs of the Court of England during the Reign of the Stuarts. By John Heneage Jesse. New Edition. Vol. II. H. G. Bohn.

Walter Colyton: a Tale of 1688. By Horace Smith. A New Edition. Knight and Son.

Our Indian Army. A Military History of the British Army in the East. By Captain Rafter. D. Bryce.

The Man at Arms. A Romance. By G. P. R. James, Esq. J. Hodgson.

Ethel Churchill; or, the Two Brides. By L. E. L. T. Hodgson.

VOLUME Second of Mr. Jesse's Memoirs of the Court of England during the Reign of the Stuarts and the Protectorate, contains sketches of Queen

Henrietta Maria, of George Villiers, Duke of Buckingham, Thomas Wentworth, Earl of Strafford, Archbishop Laud, Henry Rich, Earl of Holland, Sir Kenelm Digby, Sir John Suckling, Sir Jeffrey Hudson the Dwarf, Lucius Cary, Viscount Falkland, Oliver Cromwell, Richard, Henry, and the rest of the Cromwell family, and, lastly, Charles II., the chief notables of whose court and reign will figure in the third volume. Engraved portraits of most of the distinguished subjects of the memoirs embellish the work, which abounds in biographical and historical gossip.

The name of Horace Smith may be known to readers of fiction by his Brambletye House, and Love and Mesmerism, and other tales, but in English literature it is as one of the authors of the 'Rejected Addresses' that his fame is secure. This fame will keep alive and extend the existence of other works in which some of his humour and cleverness is shown, as the story of Walter Colyton now republished.

We may expect a flood of publications on India and its affairs, just as the Russian war and the Crimean campaign set many pens at work. As yet those that have appeared are of minor importance, or reprints of works formerly published. Captain Rafter's useful volume on the Anglo-Indian Army is re-issued, a book which gives an excellent summary of the military history of the English in India from the days of Clive down to the close of the Sikh war and the annexation of the Punjab. The narratives of former mutinies in the native army will be read with much interest. How little the present outbreak was anticipated by military men will appear from the closing words of Captain Rafter's volume, "Under all circumstances, and in any crisis that may supervene from the machinations of foreign or domestic foes, the people of England can look with confidence to the East for a numerous, well-disciplined, and well-appointed army of sepoys, almost as brave as their European comrades, and for every purpose of the field equally competent, in all places where their physical powers are not paralyzed, as in Afghanistan, by the severity of the climate." It will be seen from this sentence, that Captain Rafter's book does not throw much light on the causes of the present mutiny, though it gives a concise and animated narrative of the exploits of the Anglo-Indian army during the past century.

Miscellaneous, Pamphlets, &c.

Extracts from the Government Reports on Reformatories. By E. Carlton Tufnell, H. G. Bowyer, T. B. Browne, and J. C. Symons, Esqrs.

Modern Superstition. By Catherine Sinclair. Simpkin and Co.

The Master and Mistress and Domestic Servant, their relative Duties and Rights. By a Barrister. Low, Son and Co.

Mr. Thackeray, in his Irish Sketchbook, says he thinks we have as much right to permit suttee in India as to allow nunneries in the United Kingdom. The worst of it is, that in the excess of British toleration, and the sensitive fear of imputation of tyranny, Popish institutions are exempted from the control and supervision to which they are subject in the most rigidly Catholic of continental states. The legislature leaves the Popish dignitaries too much to their own schemes for working on the female part of the population, and the press cannot exert its wholesome influence in exposing wrong or defending right. All must be left to previous warning and argument addressed to the parents or guardians of youth. Miss Sinclair is a zealous writer in this cause; and her tract on modern superstition is one which deserves to be widely circulated on account of the facts which it narrates and the warnings it contains.

In mitigation of one of "the greatest plagues of life," Mr. Baylis, barrister-at-law, has prepared a brief manual on the rights, duties, and relations of domestic servants, their masters and mistresses. The faults and difficulties attending these relations are not always on one side, and servants are as often the sufferers as the inflictors of wrong and annoyance. Mr. Baylis considers the subject from both points of view, and while stating the law and usage of the matter, does not omit moral and religious considerations, the object being to improve the social relations between the employed and their employers. Appended is an account of servants' institutions and their advantages. In the recently published volume of addresses by the Prince Consort, is an admirable speech, delivered at an anniversary of one of these institutions. Savings' banks, annuities, deposit banks, and other institutions and arrangements of practical utility for domestic servants, are also considered by Mr. Baylis in his useful little treatise.

List of New Books.

Adams's (H. G.) Cyclopedia of Female Biography, cloth, 6s. 6d.
Ainsworth's (W. H.) Rookwood, 8vo, cloth, 5s.
Bezant's Geographical Questions, 2nd edit., cloth, 1s.; Key, 2s.
Beauties of Baden-Baden, 12mo, cloth, 3s. 6d.
Black's Picturesque Guide to North Wales, fcap. 8vo, cl., 3s. 6d.
Blake (Capt.), by W. H. Maxwell, 12mo, bds., 2s.
British Rural Sports, by Stonehenge, 3rd ed., 12mo, half-bd., 10s. 6d.
Chambers's Minor Atlas, 4to, cloth, 5s.
Finney's Ravages of Men and Time, 12mo, bds., 2s.
Fortunes of Fairleigh, 16mo, cl. limp, 1s.; cl. bds., 1s. 6d.; cl. gilt, 2s.
Heyse's (P.) Four Phases of Love, 12mo, boards, 1s.
Jelf's (W. E.) Bampton Lectures, 1857, 8vo, cloth, 7s. 6d.
Jesse's Court of England, Vol. II.; Bohn's Hist. Lib., post 8vo., 5s.
Last of the Brave, royal 8vo, cloth, £1 1s.
Livius's History of Rome, by E. R. Humphreys, 8vo, cl., 8s. 6d.
Madvig's (J. N.) Latin Grammar, 3rd edit., 8vo, cl., 12s.
Morell's (J. D.) Gram. and Analysis, with Exercises, bds., 2s. 6d.
———————, post 8vo, cloth, 2s.
Paget's (Rev. F. E.) Christian Day, 4th ed., royal 32mo, cl., 2s. 6d.
Polyglot of Foreign Proverbs; Bohn's Antiq. Lib., post 8vo, cl., 5s.
Reason Why, new edition, crown 8vo, cloth, 2s. 6d.
Stocqueler's India, 12mo, boards, 1s. 6d.
Strabo's Geography, Vol. III., post 8vo, cl.; Bohn's Class. Lib., 5s.
Thiers' French Consulate, Vol. XV., 8vo, sewed, 5s.
Thomas's (Rev. D.) Progress of Being, post 8vo, cl., 3rd ed., 2s. 6d.
Thorpe's (E.) Broken Wreath, new ed., 12mo, cl., 2s.
True to Nature, 2 vols., post 8vo, cloth, £1 1s.

ARTICLES AND COMMUNICATIONS.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Leeds is the town chosen for the next meeting of the British Association, and Professor Owen is to be the President for 1858. The honour was offered very properly to Dr. Whately, Archbishop of Dublin, but he declined it on the ground that his state of health would not allow him to undertake any duties beyond those of his archiepiscopal office. At the meeting of Council, on Monday, General Sabine presiding, invitations were received from Manchester, Leeds, Oxford University, Newcastle, and Waterford, deputations being present to plead personally for the three places first mentioned. After some conversation it was resolved to confine the choice to Manchester or Leeds, and, after due deliberation and discussion, a large majority voted for the Yorkshire town, where we have no doubt that the Association will have a good reception. As the locality is central and easily accessible, there is also every likelihood of a strong muster of members, as well as a numerous reinforcement of associates. For 1859 a suggestion in favour of Aberdeen was warmly entertained, and it was agreed to invite the Prince Consort to be the President for that year. The Dublin Meeting of 1857 will be a conspicuous one in the records of the Association. In numbers it has been surpassed by few, and in the importance of the proceedings it has more than equalled expectation. The papers read in the various Sections, of which we shall next week give a full and complete list, attest the undiminished zeal and activity of the working members of the great National Council of Science. At each year's meeting there are certain features of prominence arising either from local or incidental circumstances. The Dublin Meeting has naturally elicited a large share of attention to subjects in which Irish members have right to be specially heard. To give but a few examples out of many, Sir William Rowan Hamilton has brought forward mathematical investigations of the most abstruse and ingenious kind; Professor Hennessy has been communicative on meteorology and other physical subjects; Dr. O'Donovan has been eloquent in the ethnological section, where Dr. Hincks also has produced learned disquisitions on Indo-European languages, Semitic letters, and cuneiform writing; and Mr. Bianconi has given to the lovers of statistical and economical science a most interesting narrative of his services in promoting internal communication in Ireland by his cars and other mail conveyances. The economical uses of peat, the Ordnance survey of Ireland, and the researches of Reuss, and other scholars, on the language of the ancient Celts, were also among the diverse subjects having common interest on Irish ground. Other prominent topics at Dublin were suggested by public events of the year. The Atlantic telegraph had abundant consideration both in the sections and at one of the evening meetings. The best mode of communication with India was also fully discussed, Colonel Chesney appears in behalf of the Euphrates valley route. Dr. Livingstone was one of the worthy lions of the week, and his account of his travels, on Monday evening, was one of the most attractive events of the meeting. The Lord-Lieutenant paid graceful and just compliments to the distinguished traveller, and the president, Dr. Lloyd, stated that he had attended amidst stress of business, previous to his return to Africa, where all would follow him with deep interest and warm wishes for his success. The sectional meetings at Trinity College have been numerously attended, though the fair sex has not exhibited quite so keen an interest in the scientific proceedings as was shown at Glasgow. The evening meetings and assemblies have, however, been brilliant beyond precedent, and it is seldom that science has such a festival as that of Tuesday evening in the Castle of Dublin, under the vice-regal patronage of the popular Lord Carlisle. The excursion to Parsonstown, to Arran, and the Scottish coast, and to Wicklow, besides other less formal expeditions, will be long remembered by those who were present. The meeting has altogether been a successful one, and while possessing various points of popular attractiveness, its high scientific tone was indicated from the first by the character of Dr. Lloyd's address on assuming the chair vacated by Professor Daubeny.

The President's Address.

Gentlemen of the British Association,—Before I proceed to the task which devolves upon me this evening, in virtue of the position in which your kindness has placed me, suffer me first to thank you for the high honour you have conferred. But, highly as I esteem the distinction, it was not without hesitation that I accepted it; for no one can feel more strongly than I do myself how unfit I am for some of the duties connected with it, or how much more adequately they might have been performed by others. But I knew, at the same time, that it has been the desire of your Council, when practicable, to select your President from among those local members who had served in the ranks of the Association, and had shared in its labours: and with such knowledge, and the consciousness that I had, at least, that humble claim, I felt that I had no right to dispute your choice. I do not know whether I may venture to interpret further your motives, and to assign another reason for your selection. Two-and-twenty years have elapsed since you visited this city. Upon that occasion my nearest relative presided, and I myself had the honour of serving as one of your local secretaries. Many concurring circumstances contributed to make that meeting an agreeable one; and if your Council has thought fit, on this occasion, to associate the present with the memories of the past, the motive is, at least, a pardonable one. Gentlemen, this is to me a solemn occasion. Two-and-twenty years are no inconsiderable portion even of the longest life; and that man's moral nature is not to be envied who can contemplate the distant past thus vividly recalled without emotion! These two decades have brought with them their own large measure of change. The body in which we are associated has grown up from youth to maturity; many of its honoured names are now sought for only in the imperishable records of their toils; the institutions which welcomed it here upon its former visit to this city have all received the impress of the changing times; and yet, amid all this

change, we meet once more in the same city, in the same room, to enter again on the same labours. Our assemblage is now, as it was before, dignified by the presence of the representative of Majesty; and I see around me, associated for this task, many of those who shared it before; the men whose sagacity first perceived the want of such a Society as this, whose energy supplied it, and whose wisdom directed its steps while it had need of guidance. I trust I may be forgiven for dwelling thus far on the peculiar circumstances under which we are here assembled; and I now hasten to discharge the task which the usages of this chair impose upon me, and proceed to lay before you, as well as I am able, a brief sketch of the recent progress of some of those sciences to whose advancement we are pledged by our Institution. In doing so, I gladly follow the practice which has of late become the rule—namely, that your President for each year should bring under your notice, chiefly, the recent additions to those departments of science with which he happens to be himself most familiar. It is plainly fitting that he who addresses you should speak, as far as he can, from his own acquired knowledge. Partial views are better than inexact ones; and provision is made for their completion in the annual change of your officer. In the present instance I derive the full advantage of this arrangement; inasmuch as the subjects upon which I could not thus speak have been, most of them, ably treated by my predecessor in this chair.

To commence, then, with *Astronomy:*—The career of planetary discovery, which began in the first years of the present century, and was resumed in 1845, has since continued with unabated ardour. Since 1846 not a single year has passed without some one or more additions to the number of the planetoids; and in one year alone (1852), no fewer than *eight* of these bodies were discovered. The last year has furnished its quota of *five*, and in the present *three* more have been found, one by Mr. Pogson, of Oxford, and the other two by M. Goldschmidt of Paris. Their known number is now forty-five. Their total mass, however, is very small; the diameter of the largest being less than forty miles, while that of the smallest (Atalanta) is little more than four. These discoveries have been facilitated by star-maps and star-catalogues, the formation of which they have, on the other hand, stimulated. Two very extensive works of this kind are now in progress—the Star-Catalogue of M. Chacornac, made at the Observatory of Marseilles, in course of publication by the French Government; and that of Mr. Cooper, made at his observatory at Markree, in Ireland, which is now being published by the help of the Parliamentary Grant of the Royal Society. It is a remarkable result of the latter labour, that no fewer than seventy-seven stars previously catalogued are now missing. This, no doubt, is to be ascribed in part to the errors of former observations; but it seems reasonable to suppose that, to some extent at least, it is the result of changes actually in progress in the Sidereal System. The sudden appearance of a new fixed star in the heavens, its subsequent change of lustre, and its final disappearance, are phenomena which have at all times attracted the attention of astronomers. About twenty such have been observed. Arago has given the history of the most remarkable, and discussed the various hypotheses which have been proposed for their explanation. Of these, the most plausible is that which attributes the phenomenon to unequal brightness of the faces of the star, which are presented successively to the earth by the star's rotation round its axis. On this hypothesis the appearance should be *periodic*. M. Goldschmidt has recently given support to this explanation, by rendering it probable that the new star of 1609 is the same whose appearance was recorded in the years 393, 798, and 1203. Its period, in such case, is 405½ years. The greater part of the celestial phenomena are comprised in the movements of the heavenly bodies and the configurations depending on them; and they are for the most part reducible to the same law of gravity which governs the planetary motions. But there are appearances which indicate the operation of other forces, and which, therefore, demand the attention of the physicist—although, from their nature, they must probably long remain subjects of speculation. Of these, the spiriform nebulæ, discovered by Lord Rosse, have been already referred to from this chair, as indicating changes in the more distant regions of the universe, to which there is nothing entirely analogous in our own system. These appearances are accounted for, by an able anonymous writer, by the action of gravitating forces combined with the effects of a resisting medium—the resistance being supposed to bear a sensible proportion to the gravitating action. The constitution of the central body of our own system presents a nearer and more interesting subject of speculation. Towards the close of the last century many hypotheses were advanced regarding the nature and constitution of the sun, all of which agreed in considering it to be an opaque body, surrounded at some distance by a luminous envelope. But the only certain fact which has been added to science in this department is the proof given by Arago that the light of the sun emanated—not from an incandescent solid—but from a gaseous atmosphere, the light of incandescent solid bodies being *polarized by refraction*, while the light of the sun, and that emitted by gaseous bodies, is *unpolarized*. According to the observations of Schwabe, which have been continued without intermission for more than thirty years, the magnitude of the solar surface obscured by spots increases and decreases *periodically*, the length of the period being 11 years and 40 days. This remarkable fact, and the relation which it appears to bear to certain phenomena of terrestrial magnetism, have attracted fresh interest to the study of the solar surface; and, upon the suggestion of Sir John Herschel, a photoheliographic apparatus has lately been established at Kew, for the purpose of depicting the actual macular state of the sun's surface from time to time. It is well known that Sir William Herschel accounted for the solar spots by currents of an elastic fluid ascending from the body of the sun, and penetrating the exterior luminous envelope. A somewhat different speculation of the same kind has been recently advanced by Mosotti, who has endeavoured to connect the phenomena of the solar spots with those of the *red protuberances* which appear to issue from the body of the sun in a total eclipse, and which so much interested astronomers in the remarkable eclipse of 1842. Next to the sun, our own satellite has always claimed the attention of astronomers, while the comparative smallness of its distance inspired the hope that some knowledge of its physical structure could be attained with the large instrumental means now available. Accordingly, at the Meeting of the Association held at Belfast in 1852, it was proposed that the Earl of Rosse, Dr. Robinson, and Prof. Phillips be requested to draw up a Report on the physical character of the moon's surface, as compared with that of the earth. That the attention of these eminent observers has been directed to the subject, may be inferred from the communication since made by Prof. Phillips to the Royal Society on the lunar mountain, Gassendi, and the surrounding region. But I am not aware that the subject is yet ripe for a Report. I need not remind you that the moon possesses neither *sea* nor *atmosphere* of appreciable extent. Still, as a negative, in such case, is relative only to the capabilities of the instruments employed, the search for the indications of a lunar atmosphere has been renewed with every fresh augmentation of telescopic power. Of such indications, the most delicate, perhaps, are those afforded by the occultation of a planet by the moon. The occultation of Jupiter, which took place on the 2nd of January last, was observed with this reference, and is said to have exhibited no *hesitation*, or change of form or brightness, such as would be produced by the refraction or absorption of an atmosphere. As respects the *sea*, the mode of examination long since suggested by Sir David Brewster is probably the most effective. If water existed on the moon's surface, the sun's light reflected from it should be completely polarized at a certain elongation of the moon from the sun. No traces of such light have been observed; but I am not aware that the observations have been repeated recently with any of the larger telescopes. It is now well understood that the path of astronomical discovery is obstructed much more by the earth's atmosphere than by the limitation of telescopic powers. Impressed with this conviction, the Association has, for some time past, urged upon Her Majesty's Government the scientific importance of establishing a large reflector at some elevated station in the Southern Hemisphere. In the mean time, and to gain (as it were) a sample of the results which might be expected from a more systematic search, Prof. Piazzi Smyth undertook, last summer, the task of transporting a large collection of instruments—meteorological and magnetical, as well as astronomical—to a high point on the Peak of Teneriffe. His stations were two in number, at the altitudes above the sea of 8840 and 10,700 feet respectively: and the astronomical advantages gained may be inferred from the fact that the heat radiated from the moon, which has been so often sought for in vain in a lower region, was distinctly perceptible with the aid of the thermo-multiplier.

The researches relative to the *Figure of the Earth* and the *Tides* are intimately connected with Astronomy, and next claim our attention. The results of the Ordnance Survey of Britain, so far as they relate to the earth's figure and mean density, have been lately laid before the Royal Society by Col. James, the Superintendent of the Survey. The ellipticity deduced is $\frac{1}{299.33}$. The mean specific gravity of the earth, as obtained from the attraction of Arthur's Seat, near Edinburgh, is 5·316; a result which accords satisfactorily with the mean of the results obtained by the torsion balance. Of the accuracy of this important work, it is sufficient to observe, that when the length of each of the measured bases (in Salisbury Plain and on the shores of Lough Foyle) was computed from the other, through the whole series of intermediate triangles, the difference from the measured length was only 5 inches in a length of from 5 to 7 miles. Our knowledge of the laws of the *Tides* has received an important accession in the results of the tidal observations made around the Irish coasts in 1851, under the direction of the Royal Irish Academy. The discussion of these observations was undertaken by Prof. Haughton, and that portion of it which relates to the diurnal tides has been already completed and published. The most important result of this discussion is the separation of the effects of the sun and moon in the diurnal tide—a problem which was proposed by the Academy as one of the objects to be attained by the contemplated observations, and which has been now for the first time solved. From the comparison of these effects Prof. Haughton has drawn some remarkable conclusions relative to the *mean depth of the sea* in the Atlantic. In the dynamical theory of the tides, the ratio of the solar to the lunar effects depends not only on the masses, distances, and periodic times of the two luminaries, but also on the depth of the sea; and this, accordingly, may be computed when the other quantities are known. In this manner Prof. Haughton has deduced, from the solar and lunar co-efficients of the diurnal tide, a mean depth of 5·12 miles—a result which accords in a remarkable manner with that inferred from the ratio of the semi-diurnal co-efficients, as obtained by Laplace from the Brest observations. The subject, however, is far from being exhausted. The depth of the sea, deduced from the solar and lunar *tidal intervals*, and from *the age* of the lunar diurnal tide, is somewhat more than double of the foregoing; and the consistency of the individual results is such as to indicate that their wide difference from the former is not attributable to errors of observation. Prof. Haughton throws out the conjecture that the depth, deduced from the tidal *intervals* and *ages*, corresponds to a different part of the ocean from that inferred from the *heights*.

The phenomena of *Terrestrial Magnetism* present many close analogies with those of the tides; and

their study has been, in a peculiar manner, connected with the labours of this Association. To this body, and by the hands of its present general secretary, were presented those reports on the distribution of the terrestrial magnetic force which re-awakened the attention of the scientific world to the subject. It was in the Committee-rooms of this Association that the first step was taken towards that great magnetic organization which has borne so much fruit; it was here that the philosophical sagacity of Herschel guided its earlier career; and it was here again that the cultivators of the science assembled, from every part of Europe, to deliberate about its future progress. It was natural, therefore, that the results obtained from such beginnings should form a prominent topic in the addresses which have been annually delivered from this chair; and the same circumstances will plead my excuse, if I now revert to some of them which have been already touched upon by my predecessors. It has been long known that the elements of the earth's magnetic force were subject to certain regular and recurring changes, whose periods were, respectively, a *day* and a *year*, and which, therefore, were referred to the sun as their source. To these periodical changes Dr. Lamont, of Munich, added another of *ten years*, the diurnal range of the magnetic declination having been found to pass from a maximum to a minimum, and back again, in about that time. But besides these slow and regular changes, there are others of a different class, which recur at *irregular* intervals, and which are characterized by a large deviation of the magnetic elements from their normal state, and generally also by rapid fluctuation and change. These phenomena, called by Humboldt "magnetic storms," have been observed to occur *simultaneously* in the most distant parts of the earth, and therefore indicate the operation of causes affecting the entire globe. But, casual as they seem, they are found to be subject to laws of their own. Prof. Kreil was the first to discover that, at a given place, they recurred more frequently at certain hours of the day than at others; and that, consequently, in their *mean effects*, they were subject to *periodical laws*, depending upon the *hour* at each station. The laws of this periodicity have been ably worked out by General Sabine in his discussion of the results of the British Colonial Observatories; and he has added the important facts, that the same phenomena observe also the two other periods already noticed,—namely, the *annual* and the *decennial* periods. He has further arrived at the very remarkable result, that the decennial magnetic period coincides, both in its duration and in its epochs of maxima and minima, with the decennial period observed by Schwabe in the solar spots; from which it is to be inferred that the sun exercises a magnetic influence upon the earth dependent on the condition of its luminous envelope. We are thus in the presence of two facts, which appear at first sight opposed—namely, the *absolute simultaneity* of magnetic disturbances at all parts of the earth, and their *predominance at certain local hours* at each place. General Sabine accounts for this apparent discrepancy by the circumstance, that the hours of maximum disturbance are different for the different elements; so that there may be an abnormal condition of the magnetic force, operating at the same instant over the whole globe, but manifesting itself at one place chiefly in one element, and at another place in another. I would venture to suggest, as a subject of inquiry, whether the phenomena which have been hitherto grouped together as "occasional" effects, may not possibly include two distinct classes of changes, obeying separate laws—one of them being strictly *periodic*, and constituting a part of the regular diurnal change; while the other is strictly *abnormal* and *simultaneous*. If this be so, it would follow that we are not justified in separating the larger changes from the rest, merely on the ground of their magnitude, and that a different analysis of the phenomenon will be required. The effects hitherto considered are all referrible to the sun as their cause. Prof. Kreil discovered, however, that another body of our system—namely, our own satellite—exerted an effect upon the magnetic needle, and that the magnetic declination underwent a small and very regular variation, whose amount was dependent on the lunar hour-angle, and whose period was therefore a lunar day. This singular result was subsequently confirmed by Mr. Broun in his discussion of the Makerstown Observations; and its laws have since been fully traced, for all the magnetic elements, by General Sabine, in the results obtained at the Colonial Magnetic Observatories. The foregoing facts bear closely upon the debated question of the *causes* of the magnetic variations. It has been usual to ascribe the periodical changes of the earth's magnetic force to the thermic action of the sun, operating either *directly* upon the magnetism of the earth, or affecting it *indirectly* by the induction of the thermo-electric currents. Here, however, we have a distinct case of magnetic action, unaccompanied by heat; and the question is naturally suggested, whether the solar diurnal change may not also be independent of temperature. The most important fact, in its bearing upon this question, is the existence of an *annual inequality* in the diurnal variation, dependent on the sun's declination, recently pointed out by General Sabine. If we deduct the ordinate of the curve which represents the mean diurnal variation for the entire year, from those for the summer and winter half-yearly curves respectively, the differences are found to be equal and opposite; and the curves which represent them are, consequently, *similar*, but *oppositely placed*, with respect to the axis of abscissæ. From this, General Sabine draws the inference, that the diurnal variation is a *direct effect of solar action*, and not a result of its thermic agency.

The most important step which has been recently taken in this country to advance the science of *Meteorology* has been the formation of a department connected with the Board of Trade, for the collection and discussion of meteorological observations made *at sea*. The practical results of a similar undertaking in the United States are now well known. The charts and sailing directions published by Lieut. Maury have enabled navigators to shorten their passages, in many cases by one-fourth of the time, and in some even to a greater extent. The commercial importance of such results could not fail to attract general attention; and accordingly, when the United States Government invited other maritime nations to co-operate in the undertaking, the invitation was cordially accepted. A conference was held at Brussels in 1853, at which meteorologists deputed by those powers attended; and a Report was made, recommending the course to be pursued in a general system of marine meteorological observations. This Report was laid before the British Parliament soon after, and a sum of money was voted for the necessary expenditure. The British Association undertook to supply verified instruments by means of its Observatory at Kew; and the Royal Society, in consultation with the most eminent meteorologists of Europe and America, addressed an able Report to the Board of Trade, in which the objects to be attended to, so as to render the system of observation most available for science, were clearly set forth. With this co-operation on the part of the two leading scientific Societies, the establishment was soon organised. It was placed under the direction of a distinguished naval officer, Admiral FitzRoy; and in the beginning of 1855 it was in operation. Agents were established at the principal ports for the supply of instruments, books, and instructions; and there are now more than 200 British ships so furnished, whose officers have undertaken to make and record the required observations, and to transmit them from time to time to the Department. At the present time, 700 months of logs have been received from nearly 100 merchant ships, and are in process of tabulation. Holland is taking similar steps; and the Meteorological Institute of that country, under the direction of Mr. Buys Ballot, has already published three volumes of nautical information, obtained from Dutch vessels in the Atlantic and Indian Ocean. For the purposes of meteorological science this system cannot be considered as complete until observations *on land* are included. Most of the greater atmospheric changes are due to the distribution of land and water, and to the different effects of the sun's rays on each. Observation alone can furnish the data from which the effects of these agencies may be calculated; and we can therefore probably make no great advance in the knowledge of the meteorology of the globe, without a *concurrent* investigation of its two leading departments. Land observations exist in great numbers. In Prussia, in Russia, in Austria, and in Belgium, such observations are organised under Government direction, or at least with Government support. In other parts of Europe, as in Britain, the labour is left to individuals or scientific societies. What is needed is to give *unity* to these isolated labours—to connect them with one another, and with the results obtained at sea; and the first step to this seems to be to give them, in each country, that permanence and uniformity of system which can only be insured in measures adopted by the State. Here, however, we encounter an objection, upon which it is necessary to say a few words. It has been objected to the science of meteorology, as it is usually studied, that it proceeds upon a *false method*, and that, consequently, it has led, and can lead, to *no results*. I feel myself in a manner compelled to notice this grave objection—in the first place, because it proceeds from men whose opinions on this (or almost any other scientific question) are entitled to the highest deference; and, secondly, because this Association must bear no inconsiderable measure of the reproach, if it be well founded. First, then, as to *results*. I am free to admit that the number of those engaged in the *discussion* of meteorological observations is *disproportionately small*, and that the results obtained probably fall far short of what may be expected from the data already accumulated. But that the methods have led, and can lead, to no results, is, I think, sufficiently disproved by the labours of a single man—Prof. Dove, of Berlin. And if it be true that the course pursued in the science has yielded much fruit, *in proportion to the labour bestowed on the discussion*, it will hardly be deemed widely erroneous. Still, as it is possible that the methods pursued, though not *fruitless*, may be *inadequate*, it seems necessary to notice the objection somewhat more minutely. It is asserted, then, that the capital vice of the science of meteorology, as at present pursued, is that it has *no definite aim;* that it ought to embrace an inquiry into the *physical constitution* of the objects with which the science is concerned, and an investigation of *causes* as well as *laws* of phenomena. It may be admitted, at once, in reference to this objection, that the physical constitution of the bodies whose changes we are investigating is a proper object of study to the physicist; but it does not seem to follow that it should necessarily be conducted by the same individuals who are in search for the laws of the phenomena, or even that the former knowledge is essential to the progress of the latter. The noblest of all the physical sciences—*Astronomy*—is little more than a science of *laws*—laws, too, of the *simplest kind of change;* and the knowledge of these laws is wholly *independent of the physical constitution* of the masses whose movements it studies. A similar observation may be made regarding the science of *Terrestrial Magnetism;* and the case is one which brings us still nearer to the question at issue, inasmuch, as the laws which have been obtained—and they are numerous—have resulted from a method of inquiry altogether similar to that adopted in meteorology. Time will not permit me to inquire whether there is not a misconception of a metaphysical kind at the root of this objection. I may observe, however, before leaving the subject, that there are two modes of studying the sequences of natural phenomena,—one in their relation to time, and which is best accomplished by observations at stated periods, and the other in the relation of the *successive phases of the phenomenon to one another*. Of these, the latter, although not wholly neglected,

has not been so much followed as it deserves; and I cannot but think that it would, if more systematically followed, enrich the science of meteorology with a new harvest of results.

The most important of the recent additions to the theory of *Light* have been those made by M. Jamin. It has been long known that metals differed from transparent bodies, in their action on light, in this, that plane-polarized light reflected from their surfaces became *elliptically polarized*; and the phenomenon is explained, on the principles of the wave-theory, by the assumption that the vibration of the ether undergoes a *change of phase* at the instant of reflexion, the amount of which is dependent on its direction and on the angle of incidence. This supposed distinction, however, was soon found not to be absolute. Mr. Airy showed that *diamond* reflected light in a manner similar to metals; and Mr. Dale and Prof. Powell extended the property to all bodies having a high refractive power. But it was not until lately that M. Jamin proved that there is *no distinction* in this respect between transparent and metallic bodies; that all bodies transform plane-polarized into elliptically-polarized light, and impress a change of phase at the moment of reflexion. Prof. Haughton has followed up the researches of M. Jamin, and established the existence of *circularly-polarized* light by reflexion from transparent surfaces. The theoretical investigations connected with this subject afford a remarkable illustration of one of those impediments to the progress of Natural Philosophy which Bacon has put in the foremost place among his examples of the *Idola*—I mean the tendency of the human mind to suppose a greater simplicity and uniformity in nature than exists there. The phenomena of polarization compel us to admit that the sensible luminous vibrations are *transversal*, or in the plane of the wave itself; and it was naturally supposed by Fresnel, and after him by M'Cullagh and Neumann, either that no *normal* vibrations were propagated, or that, if they were, they were unconnected with the phenomena of light. We now learn that it is by them that the *phase* is modified in the act of reflexion; and that, consequently, no dynamical theory which neglects them, or sets them aside, can be complete. Attention has been lately recalled to a fundamental position of the wave-theory of light, respecting which opposite assumptions have been made. The vibrations of a polarized ray are all parallel to a fixed direction in the plane of the wave; but that direction may be either *parallel* or *perpendicular* to the plane of polarization. In the original theory of Fresnel, the latter was assumed to be the fact; and in this assumption Fresnel has been followed by Cauchy. In the modified theories of M'Cullagh and Neumann, on the other hand, the vibrations are supposed to be parallel to the plane of polarization. This opposition of the two theories was compensated, as respects the results, by other differences in their hypothetical principles; and both of them have led to conclusions which observation has verified. There seemed, therefore, to be no means left to the theorist to decide between these conflicting hypotheses, until Prof. Stokes recently, in applying the dynamical theory of light to other classes of phenomena, found one in which the effects should differ on the two assumptions. When light is transmitted through a fine grating, it is turned aside, or *diffracted*, according to laws which the wave-theory has explained. Now, Prof. Stokes has shown that, when the incident light is *polarized*, the *plane of vibration* of the diffracted ray must differ from that of the incident, the two planes being connected by a very simple relation. It only remained, therefore, for observation to determine whether the *planes of polarization* of the incident and refracted rays were similarly related, or not. The experiment was undertaken by Prof. Stokes himself, and he has inferred from it that the original hypothesis of Fresnel is the true one. But, as an opposite result has been obtained by M. Holtzmann, on repeating the experiment, the question must be regarded as still undetermined. The difference in the experimental results is ascribed by Prof. Stokes to the difference in the nature of the gratings employed, the substance of the diffracting body being supposed to exert an effect upon the polarization of the light, which is diffracted by it under a great obliquity. I learn from Prof. Stokes that he proposes to resume the experimental inquiry, and to test this supposition by employing gratings of various substances. If the conjecture should prove to be well founded, it will unfortunately greatly complicate the dynamical theory of light. In the meantime the hypothesis is one of importance in itself, and deserves to be verified or disproved by independent means. I would venture to suggest that it may be effectively tested by means of the beautiful *Interference-refractor* of M. Jamin, which the inventor has already applied to study the effects upon light produced by grazing a plate of any soluble substance inclosed in a fluid. It is well known that the refractive index of bodies increases with their density; and the theory of emission has even expressed the law of their mutual dependence. That theory, it is true, is now completely overthrown by the decisive *experimentum crucis* of MM. Fizeau and Foucault. It was, therefore, probable, *à priori*, that this law —the only one peculiar to the theory—would be found wanting. Its truth has recently been put to an experimental test by M. Jamin. Water, it is known, has its maximum of density at about 40° of Fahrenheit; so that, if Newton's law were true, its refractive index should also have a maximum value at the same temperature. This has been disproved by M. Jamin, by observing the interference of two rays, one of which has passed through air, and the other through water; and thus the last conclusion of the emission-theory has been set aside. It would occupy too much of your time were I to touch, even lightly, upon the subject of the *chemical action of light*, and the many beautiful and important discoveries of the art to which it has given rise. I may, however, mention, as one of the latest of the marvels of *photography*, that M. Poitevin has succeeded in producing plates in relief, for the purposes of engraving, by the action of light alone. The process depends upon the change in the affinity for water, produced by the action of light upon a thin plate of gelatine, which is impregnated with bichromate of potash.

In the whole range of experimental science there is no fact more familiar, or longer known, than the development of *Heat* by friction. The most ignorant savage is acquainted with it,—it was probably known to the first generation of mankind. Yet, familiar as it is, the science of which it is the germ dates back but a very few years. It was known from the time of Black, that heat disappeared in producing certain changes of state in bodies, and reappeared when the order of those changes was reversed; and that the amount of heat, thus converted, had a given relation to the effect produced. In one of these changes—namely, evaporation—a definite mechanical force is developed, which is again absorbed when the vapour is restored by pressure to the liquid state. It was, therefore, not unnatural to conjecture, that in all cases in which heat is developed by mechanical action, or *vice versâ*, a definite relation would be found to subsist between the amount of the action and that of the heat developed or absorbed. This conjecture was put to the test of experiment by Mayer and Joule, in 1842, and was verified by the result. It was found that *heat* and *mechanical power* were *mutually convertible*; and that the relation between them was *definite*, 772 *foot-pounds* of motive power being equivalent to a *unit of heat*—that is, to the amount of heat requisite to raise a pound of water through one degree of Fahrenheit. The science of Thermo-dynamics, based upon this fact, and upon a few other obvious facts or self-evident principles, has grown up in the hands of Clausius, Thomson, and Rankine, into large proportions, and is each day making fresh conquests from the region of the unknown. Thus far the science of heat is made to rest wholly upon the facts of experiment, and is independent of any hypothesis respecting the molecular constitution of bodies. The dynamical theory of heat, however, has materially aided in establishing true physical conceptions of the *nature of heat*. The old hypothesis of caloric, as a separate substance, was indeed rendered improbable by the experiments of Rumford and Davy, and by the reasonings of Young; but it continued to hold its ground, and is interwoven into the *language* of science. It is now clearly shown to be self-contradictory; and to lead to the result that the amount of heat in the universe may be indefinitely augmented. On the other hand, the identification of radiant heat with light, and the establishment of the wave-theory, left little doubt that heat consisted in a *vibratory movement* either of the molecules of bodies or of the ether within them. Still, the relation of heat to bodies, and the phenomena of conduction, indicate a mechanism of a more complicated kind than that of light, and leave ample room for further speculation. The only mechanical hypothesis (so far as I am aware) which is consistent with the present state of our knowledge of the phenomena of heat, is the theory of *molecular vortices* of Mr. Rankine. In this theory all bodies are supposed to consist of *atoms*, composed of *nuclei* surrounded with *elastic atmospheres*. The radiation of light and heat is ascribed to the transmission of oscillations of the nuclei; while *thermometric heat* is supposed to consist in circulating currents or *vortices*, amongst the particles of their atmospheres, whereby they tend to recede from the nuclei, and to occupy a greater space. From this hypothesis Mr. Rankine has deduced all the laws of thermo-dynamics, by the application of known mechanical principles. He has also, from the same principles, deduced relations (which have been confirmed by experiment) between the pressure, density and absolute temperature of elastic fluids, and between the pressure and temperature of ebullition of liquids. The dynamical theory of heat enables us to frame some conjectures to account for the continuance of its supply, and even to speculate as to its source. The heat of the sun is dissipated and lost by radiation; and must be progressively diminished unless its thermal energy be supplied. According to the measurements of M. Pouillet, the quantity of heat given out by the sun in a year is equal to that which would be produced by the combustion of a stratum of coal seventeen miles in thickness; and if the sun's capacity for heat be assumed equal to that of water, and the heat be supposed to be drawn uniformly from its entire mass, its temperature would thereby undergo a diminution of 2°·4 Fahr. annually. On the other hand, there is a vast store of force in our system capable of conversion into heat. If, as is indicated by the small density of the sun, and by other circumstances, that body has not yet reached the condition of incompressibility, we have, in the future approximation of its parts, a fund of heat probably quite large enough to supply the wants of the human family to the end of its sojourn here. It has been calculated that an amount of condensation, which would diminish the diameter of the sun by only the ten-thousandth part, would suffice to restore the heat emitted in 2000 years. Again, on our own earth, *vis viva* is destroyed by friction in the ebb and flow of every tide, and must therefore reappear *as heat*. The amount of this must be considerable, and should not be overlooked in any estimation of the physical changes of our globe. According to the computation of Bessel, 25,000 cubic miles of water flow in every six hours from one quarter of the earth to another. The store of mechanical force is thus diminished, and the temperature of our globe augmented by every tide. We do not possess the data which would enable us to calculate the magnitude of these effects. All that we know with certainty is, that the *resultant effect* of all the thermal agencies to which the earth is exposed has undergone no perceptible change within the historic period. We owe this fine deduction to Arago. In order that the *date palm* should ripen its fruit, the mean temperature of the place must exceed 70° Fahr.; and, on the other hand, the *vine* cannot be cultivated successfully when the temperature is 72° or upwards. Hence, the mean temperature of any place at which these two plants flourished and bore fruit

must lie between these narrow limits, *i. e.* could not differ from 71° Fahr. by more than a single degree. Now, from the Bible we learn that both plants were *simultaneously* cultivated in the central valleys of Palestine in the time of Moses; and its then temperature is thus definitively determined. It is the same at the present time; so that the mean temperature of this portion of the globe has not sensibly altered in the course of thirty-three centuries.

The future of physical science seems to lie in the path upon which three of our ablest British physicists have so boldly entered, and in which they have already made such large advances. I may therefore be permitted briefly to touch upon the successive steps in this lofty generalization, and to indicate the goal to which they tend. It has been long known that many of the forces of nature are related. Thus, heat is produced by *mechanical action*, when that is applied in bringing the atoms of bodies nearer by compression, or when it is expended in friction. Heat is developed by *electricity*, when the free passage of the latter is impeded. It is produced whenever *light is absorbed;* and it is generated by *chemical action*. A like interchangeability probably exists among all the other forces of nature, although in many the relations have not been so long perceived. Thus, the development of electricity from chemical action dates from the observations of Galvani; and the production of magnetism by electricity from the discovery of Oersted. The next great step was to perceive that the relation of the physical forces was *mutual;* and that of any two, compared together, either may stand to the other in the relation of *cause*. With respect to heat and mechanical force, this has been long known. When a body is *compressed* by mechanical force, it gives out *heat;* and, on the other hand, when it is *heated*, it dilates, and evolves *power*. The knowledge of the action of electricity in dissolving the bonds of chemical union followed closely upon that of the inverse phenomenon; and the discovery of *electro-magnetism* by Oersted was soon followed by that of *magneto-electricity* by Faraday. With reason, therefore, it occurred to many minds that the relations of any two of the forces of nature were *mutual*—that that which is the *cause*, in one mode of interaction, may become the *effect*, when the order of the phenomena is changed;—and that therefore, in the words of Mr. Grove, one of the able expounders of these views, while they are "correlative," or reciprocally dependent, "neither, taken abstractedly, can be said to be the essential cause of the others." But a further step remained to be taken. If these forces were not only related, but mutually related, was it not probable that the relation was also a *definite* one? Thus when heat is developed by mechanical action, ought we not to expect a certain definite proportion to subsist between the interacting forces, so that if one were doubled or trebled in amount, the other should undergo a proportionate change? This anticipation, it has been already stated, has been realized by Mayer and Joule. The discovery of the mechanical equivalent of heat has been rapidly followed by that of other forces; and we now know not only that electricity, magnetism, and chemical action, in given quantities, will produce each a *definite amount of mechanical work*, but we know further—chiefly through the labours of Mr. Joule—what that relation is, or, in other words, *the mechanical equivalent of each force*. The first step in this important career of discovery—though long unperceived in its relation to the rest—was, undoubtedly, Faraday's proof of the definite chemical effect of the voltaic current. The last will probably be to reduce all these phenomena to *modes of motion*, and to apply to them the known principles of dynamics, in such a way as not only to express the laws of each kind of movement, as it is in itself, but also the connexion and dependence of the different classes of the phenomena.

A bold attempt at such a generalization has been made by M. Helmholtz. The science of Thermodynamics starts from the principle, that *perpetual motion is impossible*, or, in other words, that we cannot, by any combination of natural bodies, produce force out of nothing. In mechanical force, this principle is reducible to the known law of the *conservation of living force;* and M. Helmholtz has accordingly endeavoured to show that this law is maintained in the interaction of all the natural forces; while, at the same time, the assumption of its truth leads to some new consequences in physics, not yet experimentally confirmed. Expressed in its most general form, this principle asserts that the *gain* of *vis viva* during the motion of a system, is equal to the *force consumed* in producing it; from which it follows, that the sum of the *vires vivæ*, and of the existing forces, is constant. This principle M. Helmholtz denominates the *conservation of force*. A very important consequence of its establishment must be, that all the actions of nature are due to attractive and repulsive forces, whose intensity is a function of the distance,—the conservation of *vis viva* holding only for such forces. It is usually stated in mechanical works, that there is a *loss* of *vis viva* in the *collision of inelastic bodies*, and in *friction*. This is true with respect to the *motion of masses*, which forms the subject of mechanical science as at present limited; but it is not true in a larger sense. In these, and such-like cases, the movement of masses is transformed into *molecular motion*, and thus reappears as heat, electricity, and chemical action; and the amount of the transformed action definitely corresponds to the mechanical force which was apparently lost. In the cases just considered, mechanical action is converted into molecular. But molecular actions of different kinds are themselves in like manner interchangeable. Thus, when *light* is absorbed, *vis viva* is apparently lost; but—not to speak of *phosphorescence*, in which the light absorbed, or a portion of it, is again given out—in all such cases, heat and chemical action are developed, and in amount corresponding to the loss. Hence the apparent exceptions to the principle are in reality confirmations of it; and we learn that the quantity of force in nature is as unchangeable as the quantity of matter. This, however, is not true of the quantity of *available force*. It follows from Carnot's law, that heat can be converted into mechanical work only when it passes from a warmer to a colder body. But the radiation and conduction by which this is effected tend to bring about an *equilibrium of temperature*, and therefore to annihilate mechanical force: and the same destruction of energy is going forward in the other processes of nature. Thus, it follows from the law of Carnot, as Prof. Thomson has shown, that the universe tends to a state of eternal rest; and that its store of available force must be at length exhausted, unless replenished by a new act of Creative Power. Mr. Rankine has attempted, in another method, to combine the physical sciences into one system, by distinguishing the properties which the various classes of physical phenomena possess in common, and by taking for axioms propositions which comprehend their laws. The principles thus obtained are applicable *to all physical change*; and they possess all the certainty of the facts from which they are derived by induction. The subject-matter of the science so constituted is *energy*, or the capacity to effect changes; and its fundamental principles are, first, that all kinds of energy and work are homogeneous—or, in other words, that any kind of energy may be made the means of performing any kind of work; and, secondly, that the total energy of a substance cannot be altered by the mutual action of its parts. From these principles the author has deduced some very general laws of the *transformation of energy*, which include the known relations of physical forces.

I have occupied your time so largely with the sciences of one Section, that I cannot do more than advert to one or two topics connected with the others, which have struck my own mind, although, from my limited acquaintance with the subjects, I could not venture to say that they are absolutely the most deserving of notice. Among the most remarkable of the recent discoveries in *Inorganic Chemistry* are those of MM. Wohler and Deville, relative to *silicon* and *boron*. Each of these substances is now proved to exist in three very different states, analogous to the three known states of *carbon*, to which they are thus closely allied,—namely, *charcoal, graphite*, and *diamond*. The last of these states is of course the most interesting. *Crystallized boron* possesses a hardness, brightness, and refractive power, comparable to those of diamond; it burns in chlorine, without residue, and under circumstances resembling those of the combustion of diamond in oxygen; it is not acted on by any of the acids, and appears to be the least alterable of all the simple bodies. I have been informed that its powder is already used in the arts, instead of diamond dust; and it seems not improbable that, when obtained by the chemist in crystals of larger size, it may rival the diamond as a gem.

The science of *Geology* appears, of late years, to have entered upon a new phase of its development,—one characterized by a stricter reference of its speculative views to the principles of those sciences with which it is connected, and upon which it ought to be based. The able Memoirs of Mr. Hopkins, on what may be called *Dynamical Geology*, afford a remarkable proof of this; and we have another instance of the application of sound physical principles to this science in the explanations which have been recently offered of the phenomena of *slaty cleavage*. A Report on this interesting subject was presented to the Association by Professor Phillips at its last Meeting, and will be found in the volume just published. These sounder views originate, I believe, with himself and with Mr. Sharpe; but they have been enlarged and confirmed by Mr. Sorby, Dr. Tyndall, and Professor Haughton. We have an interesting proof of the readiness of geologists of the present day to submit their views to the test of exact observation, in the measurements undertaken by Mr. Horner for the purpose of approximating to the age of the sedimentary deposits. Of the geological changes still in operation, none is more remarkable than the formation of deltas at the mouths of great rivers, and of alluvial land by their overflow. Of changes of the latter kind, perhaps the most remarkable is the great alluvial deposit formed in the valley of the Nile by the annual inundations of that river; and here it fortunately happens that history comes to the aid of the geologist. These sedimentary deposits have accumulated round the bases of monuments of *known age;* and we are, therefore, at once furnished with a *chronometric scale* by which the rate of their formation may be measured. The first of the series of measurements undertaken by Mr. Horner was made, with the co-operation of the Egyptian Government, around the obelisk of Heliopolis, a monument built, according to Lepsius, 2300 years B.C. A more extensive series of researches has been since undertaken in the district of Memphis; but Mr. Horner has not yet, I believe, published the results.

The problems now to be solved in *Palæontology* are clearly defined in the enunciation of the problem recently proposed by the French Academy of Sciences as one of its prize questions—viz., "to study the laws of distribution of organic beings in the different sedimentary rocks, according to the order of their superposition; to discuss the question of their appearance or disappearance, whether simultaneous or successive; and to determine the nature of the relations which subsist between the existing organic kingdom and its anterior states." The prize was obtained by Professor Bronn, of Heidelberg; and his Memoir, of which I have only seen an outline, appears to be characterized by views at once sound and comprehensive. The leading result seems to be, that the genera and species of plants and animals, which geology proves to have existed successively on our globe, were *created in succession*, in adaptation to the existing state of their abode, and *not transmuted*, or *modified*, as the theory of Lamark supposes, by the physical influences which surrounded them.

I must now pass from the results of science to the administrative measures which have been adopted by this Association for its advancement, and more especially to those which will be brought

under your consideration at the present Meeting. One of the modes in which this Association most effectively promotes the advancement of science is, you are aware, by the preparation and publication of Reports on the history, and actual state, of its several branches. With the help of these, original investigators may, with little labour, ascertain all that has been accomplished in each department, before they proceed to increase the store; and so not only prepare their own minds for their task, but also avoid the waste of time and toil which has been too often incurred in the re-discovery of the same truths. To further the same objects, it was proposed by Professor Henry, of Washington, at the Glasgow Meeting of the Association, that a Catalogue of papers occurring in the Transactions of Scientific Societies, and in the Scientific Journals, should be prepared by the Association, the Smithsonian Institution undertaking to execute that part of the work which related to American Science. A Committee, consisting of Mr. Cayley, Mr. Grant, and Professor Stokes, was appointed to consider this proposal, and their Report was submitted to the Cheltenham Meeting. The subject has since been under the consideration of the Council of the Royal Society; and a preliminary Report has been drawn up by a sub-Committee of that body, which will probably be brought before your Committee at this meeting.

A still more important question has been, for some years, under the consideration of this Association, and the Royal Society—the question, namely, whether any measures could be adopted by the Government, or Parliament, that would improve the position of science or its cultivators in this country. The Parliamentary Committee of the Association have taken much pains in the attempt to arrive at a solution of this large and complex question. They consulted, in the first instance, several of the most eminent scientific men of this country; and in their first Report, presented to the Meeting of the Association at Glasgow, they have analyzed the replies obtained, and have recommended certain general measures founded thereon. The most important of these recommendations are the provision, at the cost of the nation, of a central building in London, in which the principal Scientific Societies of the metropolis may be located together; and the formation of a Scientific Board, to have the control and expenditure of the public funds allotted to the advancement of science. This Report was brought under the consideration of your Committee of Recommendations at the last two Meetings of the Association; and the opinions of the members of the General Committee have been since invited in reference to its suggestions. The Council of the Royal Society have likewise deliberated on the same question, and have passed certain resolutions on the subject, which accord in substance with the conclusions of the Parliamentary Committee. A copy of these resolutions was forwarded by Lord Wrottesley, as President of the Society, to Lord Palmerston; and motions have been made in both Houses of Parliament for the production of the correspondence. The first of the objects above referred to—namely, the juxtaposition of the Scientific Societies of London in one locality—has been since accomplished by the grant of Burlington House for the use of the Royal, Linnæan, and Chemical Societies; and the result affords a fresh instance of the readiness of Her Majesty's Government to listen to, and comply with, the suggestions of men of science, when deliberately and carefully made. I cannot but think that this important step is fraught with consequences affecting the promotion of science, and extending far beyond the external and obvious advantages which it insures to the Scientific Societies more immediately benefited.

Another mode in which this Association has materially aided in the advancement of science is through the instrumentality of its Observatory at Kew. The objects which are at present attained by that important establishment are, the trial and improvement of instrumental methods, and especially of those connected with the *photographic registration* of natural phenomena; the *verification* of meteorological instruments, and the construction of *standard* barometers and thermometers; the supervision of apparatus to be employed by scientific travellers, and the instruction of the observers in their use; and lastly, the conduct of *special experimental research*, undertaken by members of the Association at its request. In all these various ways, the labours of the Kew Observatory have tended, in no small degree, to the advancement of the sciences of Observation and Experiment in this country; and the result is due, not only to the sagacity of the Committee under whose management it is placed, but also, and eminently, to the zeal and talents of Mr. Welsh, the gentleman who has the immediate charge of the establishment.

There is but one other topic connected with the administration of the Association to which I feel it necessary to invite your attention before I conclude—I mean the change which has been made in the constitution of one of the Sections, and which will come into operation at the present meeting. By a resolution of your Committee, adopted at the last meeting, the scope of the "Statistical Section" has been enlarged, and it now embraces *Economic Science* in all its relations. I regard it as a fortunate circumstance for the Association, that this important change will come into operation under the Presidency of the distinguished prelate whose talents have been so long devoted to the advancement of this science, and to whose munificence we owe the formation of a school of Political Economy in the University of Dublin, which has already attained a high measure of celebrity. The Section will have the aid, on this occasion, of more than one of those gentlemen who have filled the Chair of the Whately Professorship, as well as of other members of the Statistical Society of Dublin; and its proceedings will receive the countenance and support of many foreigners who have devoted themselves to the cultivation of Economic Science.

Gentlemen, suffer me now to thank you for the indulgent attention with which you have favoured me. I am conscious that the sketch of the recent progress of the Physical Sciences, which I have endeavoured to present, is but a meagre and imperfect summary of what has been accomplished; but it is enough, at all events, to prove that Science is not on the decline, and that its cultivators have not been negligent in their high calling. I now beg, in the name of the Local Members of this body, to welcome you warmly to this city; and I pray that your labours here may redound to the glory of God, and to the welfare and happiness of your fellow-men.

GOSSIP OF THE WEEK.

In consequence of the meeting of the British Association, a special Commencement was held in the Examination Hall of Trinity College on Wednesday, when the following degrees were conferred:—Doctor of Laws (ordinary), Sir Samuel Martin, Baron of the Exchequer; Doctor of Laws (honorary), Professor Daubeny and Professor Phillips of Oxford, Professor Thompson of the University of Glasgow, Mr. Hopkins, Sir John Richardson, Colonel Portlock, R.E., Mr. Joule, Professor Macquorne Rankine of Glasgow University, Major-General Sir James Chatterton.—Honorary diplomas were also conferred on M. Léon Foucault, Herr Schlagintweit, and Professor Rogers of Boston.

The New York State Legislature has voted a sum of a thousand dollars for a gold medal commemorative of the services of Dr. Kane, the Artic explorer, to be presented to his family. An American paper describes the medal, which has been completed at New York, as being an elaborate and ingenious piece of workmanship. On one side is a representation of the open Polar sea, of which Dr. Kane's work gives a most graphic account. On the reverse is the coat of arms of the State of New York, and round the rim is the inscription, "Presented to Dr. E. U. Kane, U.S.N., for his gallant services in search of Sir John Franklin, by the State of New York, 1857." The medal will be presented to Dr. Kane's father, Judge Kane, of Philadelphia. This is a graceful and considerate tribute, and those who in this country awarded the Geographical medal to Dr. Kane will be glad to hear of another honour being paid to his memory.

Our scientific societies, in offering prizes and medals, not only awaken a generous spirit of emulation, but usefully direct attention to special subjects worthy of research or elucidation. The Royal Society of Edinburgh announces the following subjects of competition for the award of 1858–59. The Keith Prize, a gold medal and from 40*l.* to 50*l.* in money, will be given for the best communication on a scientific subject, made in the first instance to the Society during the sessions 1855–56 and 1856–57. Preference will be given to a paper containing a discovery. Brewster, Forbes, and other distinguished natural philosophers, have been the gainers of the Keith medal on former occasions. The Macdougall Brisbane Prize, a gold medal and money, will be awarded to the best biographical notice of an eminent Scotchman, including an estimate of the influence and importance of his writings and discoveries. Sir Robert Sibbald, Sir Andrew Balfour, Maclaurin, Black, Monro *Primus* and *Secundus*, several of the family of Gregory, Sir James Hall, Jameson, are mentioned as instances of biographies which are desired. Playfair's account of Hutton's life and discoveries, or Dugald Stewart's memoir of Reid, are models of what such biographies might be. In the earlier volumes of the Royal Society's 'Transactions' also are other memoirs worthy of imitation. This prize will be awarded in February, 1859. The Neill Prize, a gold medal and money, will be given for the best paper on a subject of natural history, by a Scottish naturalist, presented to the Society during the three years previous to February, 1859, or failing any paper thus communicated, to the best work or treatise published within the five years preceding the time of award.

Some of the events recorded in the last chequered despatches from the East recall old associations in past times of Indian history. The gallant Sir Hugh Massey Wheeler, K.C.B., whose loss at Cawnpore is deplored, was present at the battle of Delhi, in September, 1804, in the days of Lord Lake. He was but a boy then, and his service extends over almost half the period of the British history in the East. Sir Colin Campbell, too, by this time may be on the scene where he gained his first laurels more than half a century ago. In December, 1803, he led the forlorn hope, with the light infantry of the 94th regiment, at the storming of the Fort of Gawilghur, in the great Mahratta war. Generals Hearsey, Penny, and others less distinguished, also commenced their military career at least half a century since. The brave and good Sir Henry Lawrence was much the junior of these officers, having got his commission in 1821. Baird Smith, now at the head of the Engineers before Delhi, is the youngest on the list of Brevet Lieut.-Colonels, and has only been twenty years in the Company's service. Until summoned to his present honourable post, he was Superintendent of Canals in the north-west provinces, and his valuable book on Indian irrigation attests the extent and importance of his labours in these public works. The names of Herbert Edwardes, Neville Chamberlain, John Nicholson, and others who gained distinction in former Indian wars, will again gather fresh lustre. General Jacob remains in command of the expeditionary force in Persia since the return of General Sir James Outram, who, notwithstanding his quarrels with Sir Charles Napier, was a soldier of the same stamp. Captain Maude, who, with his field-battery brought up rapidly from Ceylon, chiefly contributed to the victory of Colonel Havelock, has made a brilliant commencement of the services of the Royal Artillery in the East. With men like these, and others whose names are already historically familiar, such as Grant, Banks, Havelock, and Niell, there is every ground for expecting that the strength and spirit of the British force in India will not, as in

the Crimea, be neutralized through the incompetence of their leaders.

While negotiations and disputes are going on about the best route of telegraphic communication with India, and the Euphrates Valley and Red Sea lines are competing for government patronage and public support, it is most satisfactory to have to announce that Mr. Newall is now at Cagliari, arranging for the immediate laying of a cable between Genoa and Sardinia. When that is done, the extension of the line from Cagliari to Malta, and thence to Corfu, is projected. The completion of the communication with the East on this side of the Isthmus of Suez or of the Bosphorus will not be unnecessarily retarded. It is unworthy of the British government to allow of any needless delay in regard to the eastern portion of the line, where no obstacles exist except those arising from commercial rivalry and political jealousy. The Directors of the East India Company have agreed to the proposal of the Red Sea Company, who offer instantly to commence the line from Suez to Aden, and thence to Kurrachee, provided they are guaranteed a subvention of 20,000*l.* annually, dating from the receipt of the first message, and to cease when the profits of the undertaking amount to six per cent. The financial part of the scheme is safe, the political protection of the Turkish and Egyptian government is secured, and the engineering difficulties are of no magnitude, though the advocates of the Euphrates Valley line speak dismally of the coral reefs of the Red Sea. All that is now wanted is the assent of the British government to the proposal of the Company, backed by the Court of Directors. Let the Syrian line be also proceeded with, if funds are procurable, but let not obstructions be put in the way of the public service by the rivalry of hostile speculators and capitalists. There is room for both lines, but one ought at once to be commenced.

While Sussex, Surrey, Middlesex, and Essex, possess each its Archæological Society, Kent has none, though possessing not a few zealous antiquaries, and as rich in objects of historical interest as the adjacent counties. Some years ago a proposal to form a Kent Archæological Society was mooted, but met with insufficient response. It is now suggested, on the motion of Mr. J. J. Howard, F.S.A., that the Surrey Archæological Society might extend its operations so as to include both counties. A special meeting is to be held to consider the proposal, and a committee, consisting of some of the members of the Society along with gentlemen of Kent, is now engaged in maturing the plan. The Surrey Archæological, founded in 1854, at present numbers 470 members, of whom 70 are life members. The proceedings of the Society have been full of interest, and have tended to promote the intelligent pursuit of archæological studies in the county. Of some of the pleasant and instructive meetings and excursions of the Society we have given reports in our columns. In extending the sphere of action, so as to include Kent as well as Surrey, many benefits would be gained. There are certainly advantages in confining researches to particular districts, which are thereby more thorou hly explored, and the generous rivalry of different counties is an additional stimulus to exertion. But there are also points to be gained by the alliance of adjoining counties, as has been shown in the successful career of the Historic Society of Lancashire and Cheshire. The present multiplication of archæological associations, although partly produced by less creditable causes than local convenience, has tended to quicken research and exploration, but where amalgamation and alliance can be effected with advantage, it may be found that union is strength, and this will prove the case, we imagine, in the formation of a Surrey and Kent Archæological Society. In the statement of the Surrey Archæological, in which the proposal is made, some of the advantages of the step are thus enumerated. "The antiquarian riches of Kent are inexhaustible, the Roman, Saxon, Norman, and every other era of the past being represented by relics existing in almost every part. But abundant as is this harvest, the labourers have been almost entirely wanting; otherwise the invaluable Faussett collection of Anglo-Saxon antiquities collected in Kent would never have been permitted to leave that county, to become the property of a Liverpool merchant. This fact is but one of many that might be adduced, in proof that Kentish Archæology greatly needs a representative. The county histories abound in errors, even Halstead being meagre and imperfect for a day of antiquarian knowledge like our own. The chapter and libraries of Canterbury and Rochester, and many of the private collections of the county, contain much valuable information hitherto unexplored; while the ancient laws of Romney Marsh, the history of Gavelkind, the peculiar immunities and customs of the Cinque Ports, and many other points of great importance, furnish most interesting illustrations of early history and ancient customs. The ecclesiastical antiquities and the noble mansions of Kent, unsurpassed in number and variety by those of few, if any, of the other English counties, are in themselves a source of inexhaustible interest." These considerations, it is true, might be urged in favour of forming a Kent Archæological Society, but since there are difficulties, it may be well to adopt the proposal of uniting with the Surrey Archæological.

For social purposes military and naval men in London have ample accommodation in the splendid club-houses, which are architectural ornaments of the metropolis, while affording every comfort and luxury to the members. It would be much to the credit of officers of the two services, if more general support were given to an institution of humbler external appearance, but affording many advantages for professional study and improvement, the United Service Institution in Whitehall-yard. Several changes have lately taken place in this establishment, which open up for it a new prospect of usefulness. Courses of lectures on subjects of professional interest are now given in the theatre of the Institution, and a journal, of which the first number has appeared, will contain a record of the proceedings, and a selection of the most important lectures and communications. The following are the papers already published—'On Field Fortification,' by Capt. Lendy, of the French Staff, Director of the Military Institute of Sunbury; 'On the Armies of Ancient Greece,' by the Rev. G. R. Gleig, Chaplain-General to the Forces; 'On Persia and the Persians,' by Colonel Sir Henry Rawlinson; 'On China and the Chinese,' by J. Crawford, Esq., F.R.S.; 'On Military Surveying and Reconnaissances,' by Capt. Baillie, E.I.C.S.; 'On the Forms of Ships with relation to Naval Gunnery,' by Capt. Fishbourne, R.N. There is also a memorandum relating to the model of Sebastopol presented by the Prince Consort, and other models and plans illustrative of the Crimean campaigns. This Journal, published under the superintendence of the council, promises to present much interesting and instructive matter. The Government, in order to encourage the Institution, has consented to relinquish the annual sum of 200*l.* hitherto received as rent for the premises in Whitehall-yard, along with other charges amounting altogether to no less than 430*l.* a-year, and this will enable the Council to continue the publication of the Journal without any charge to the members. The East India, Militia, and Yeomanry services, as well as the Queen's Army and the Royal Navy, are admitted to a participation in the benefits of the Institution, and many of the ablest military and naval officers take active part in its proceedings. Yet it appears that the whole number of members at present is 1418, while in 1844 there were 2177. Of the 1418, the Guards and household cavalry give 275 members, the navy of all ranks 556, and the East India service 151, leaving of the line only 189 members, and 247 of cavalry, artillery, and engineer officers. As the subscription is only ten shillings a-year, a far larger support ought to be given to the United Service Institution, and we trust that this will be the case, now that a new vigour has been introduced in the management, and practical proofs are given of the professional advantages which it affords. The Journal will be sent to all members serving in other parts of the country and in the colonies, so that the usefulness of the Institution is not confined only to those officers stationed in or near London. Since the death of Mr. Tonna, Captain Burgess has been appointed to the post of Secretary and Curator, and we hope that at the close of his first year in office he may be able to report a revived and extended interest in the United Service Institution.

Mrs. Johnstone, an authoress of no little note in her day, the writer of many volumes of fiction, and of a more important work, of practical use, 'Meg Dod's Cookery Book,' much praised by Christopher North and other good judges in culinary art, died last week at her residence in Edinburgh. 'Clan Albyn,' 'Violet Hamilton,' 'Knights of the Round Table,' and a series of stories known as the 'Edinburgh Tales,' were among the separate works of this ingenious and industrious writer. She also contributed many articles to 'Tait's Magazine,' of which she was for some years editor.

The President of Queen's College, Cambridge, Joshua King, LL.D., died at his residence on Tuesday, after long illness. Dr. King was senior wrangler in 1819, a year which included the names of many men who have since become distinguished. In 1831 he succeeded to the presidency of his college, of which he had been ten years a Fellow, on the death of Dr. Godfrey. He held the office of Lucasian Professor of Mathematics from 1839 to 1849, when he resigned from ill health. He was in his 60th year.

Lives of Eugène Sue and Béranger are announced as in course of preparation, by Madame Solms, who is said to possess between seven and eight hundred of Sue's autograph letters.

The literary remains of Francescini, which have been purchased by the Federal Government of Switzerland, consist of two volumes of general Swiss statistics, besides the statistics of the canton of Berne (ready for the press), the history and statistics of the cantons of Wallis and Tessin, and a volume of notices of Swiss celebrities.

The celebrated Mezzofanti library has been purchased by the Pope, principally out of his own privy purse, and munificently presented to the Bologna public library. The collection consists of several thousand volumes, principally classical and oriental works, and contains gammars, dictionaries, and educational books alone, in eighty different languages and dialects. The Bologna library, which has had the good fortune to acquire this treasure, possesses already about one hundred and forty thousand volumes, many of which are very rare.

From a volume of statistical returns just published in France, we extract these details:—The weight of books, in dead or foreign languages, exported in 1854, 1855, and 1856, was 723 tons English, and the value of them was 289,000*l.* English; the weight of books in the French language, exported in the same three years, was 4320 tons, and the value of them about 1,300,000*l.* Paper exported in the said three years weighed 23,000 tons, and was worth 1,574,000*l.*; engravings and lithographs, 518 tons, of the value of 727,000*l.*; geographical maps, 28 tons, of the value of about 17,000*l.*; music, 95 tons, of the value of 46,000*l.*; and printing characters, 253 tons, of the value of 40,000*l.* As regards books, the largest export was made to Belgium, and the next largest to England:—that to the former country exceeding 350,000*l.* in the three years, and to the latter exceeding 160,000*l.* To the United States it was about 64,000*l.*, to Germany about 60,000*l.*, to Spain 60,000*l.*, to Sardinia 80,000*l.*, to Portugal 36,000*l.*, to the Two Sicilies 31,000*l.*, to Tuscany 35,000*l.*, to Switzerland 83,000*l.*, to Russia 14,000*l.*, to the Papal States 4000*l.*, to Turkey and Egypt 24,000*l.*, and to Mexico 5*l*,000*l.* These figures give a very fair idea of the relative state of the intellectual development of the different countries,—though we confess we were not prepared to find the import of French books into England so large, and into Germany so small. In the year 1854 Russia did no

receive a single book from France; the Papal States did not receive a single one either in that year or in 1855, and whilst Egypt received none in 1854, Turkey received none in 1856. In addition to what England imported directly, a considerable quantity of books was sent to several of her colonies. She also received more paper from France than any other country; the same was the case with regard to engravings, lithographs, and maps; and of music Belgium was the only country which imported more largely than she did.

The first part of the fifth volume of a work relating to the history of the German Empire, and the progress of civilization in the middle ages, has just appeared, and merits attention. The title is "Historia diplomatica Frederici Secundi, sive constitutiones, privilegia, mandata, instrumenta quæ supersunt istius imperatoris et filiorum ejus collectad fidem chartorum et condicium recensuit, juxta seriem annorum disposuit et notio illustravit J. L. A. Huillard Bruholles in Archivo Cæsareo Parisiensis. Archivarius auspicius et susceptibus H. de Albertis de Luynes unius ex academiæ inscriptionem sociis." The work is one of the most elaborate and important that has appeared for some time, its information being drawn entirely from original sources hitherto closed to the public. There are five large volumes already published.

Padre Theiner, whose proposed history of the Council of Trent we lately mentioned at length, has discovered much highly valuable new matter in Florence, and amongst other things in the royal archives, a key to the cypher writing, in which so many MSS. in the Vatican are written, and which have hitherto been unintelligible to the students of the present day. Several of these secret correspondences are known to relate to the Council of Trent.

The sale of 'La Nouvelle Bible, ou le Dernier Testament,' which was lately published in Lausanne, has been forbidden by the Swiss Government.

Pius the Ninth has presented a beautifully-carved cameo of the head of St. Peter, set in massive gold, as a token of his esteem and admiration, to Maria Marovich, the celebrated Venetian poetess, whom he graciously received at a public audience.

Antonio Caccia has just translated Byron's Don Juan into Italian; some of the passages must sound rather oddly in the lingua dolce e bella.

The Academia Pontaniana of Naples has offered a prize of one hundred and fifty Neapolitan ducats, for the best essay on the life and works of Pietro delle Vigne of Capua, chancellor of Frederick the Second.

Dr. Enner of Konigswinter has been appointed to the responsible post of keeper of the archives of Cologne.

FINE ARTS.

THE TURNER GALLERY.

1812. *Snowstorm: Hannibal and his Army crossing the Alps.*—Among all the effects of light in the room, not excepting that of the *Sodom*, which is heightened by fire, the *Hannibal* contains the most powerful. There is very little to be made out of this picture, beyond what may be seen at a first glance:—the sun "low, broad, and wan," to use Turner's own epithets, and the storm of snow and hail descending bodily upon the unhappy crowds of soldiers seen thronging together in the centre of the scene, or rushing in terrified groups to seek the shelter of the rocks in front. But the chiaroscuro of this subject is amongst the boldest and most forcible that Turner had yet accomplished. It is remarkable that to this subject first, in point of date, is attached an extract from that strange poem, 'The Fallacies of Hope,' which Turner seemed to fancy he was composing or illustrating. There are few of his large works which may not, in some way or other, be introduced to illustrate so universal a passion as Hope. But the lines which are cited as specimens of Turner's poem are of the most halting, incoherent, and inconsequent description. Something of the impatience he betrays as an author to the simplest rules of grammar and composition is unquestionably to be remarked in the construction of his later pictures. Had Turner adhered more faithfully to the grammar and accidence of painting, his works would have lived longer, and have reproached him less than they often do now.

In the next room are six pictures:—

Before 1805. *View of a Town.* A sketch of insignificant interest, but touched with a rich warm glow in the manner of Wilson.

1814. *Dido and Æneas on the Morning of the Chase.* A beautiful subject, painted in a clear silvery tone, with a profusion of the grand architecture, troops of royal attendants, sumptuous dresses, chargers, dogs, chariots, &c., which Turner delighted in. Of the chronology of his Carthage he seems to have been perfectly careless. Dido built the city, according to Virgil and Turner himself; yet here are the broken pieces of a distant bridge already fallen into decay, and hoary with venerable age. The buildings are manifestly overcrowded, but yet preserve a picturesqueness of outline which is very charming to the eye. Many of the objects in the foreground—figures, dogs, horses, &c., are painted with remarkable skill and truth. But it is the charm of the open, clear, breezy atmosphere which commends this picture at once to our admiration.

1814. *Apuleia in search of Apuleius.* The figures in this subject, though painted with more than ordinary care and attention, are nevertheless again subordinate to the landscape. The bridge is arranged with all the grace of Turner's fancy, with its central tower, the peaceful figure passing over or resting upon it; its woody banks and rich environs of foliage; and the town and mill on the right. The picture is stated to have been painted as a companion to the Petworth Claude, and is manifestly in the style of the French artist.

1815. *Crossing the Brook.* The spectator is surprised to learn that this grand Claude-like composition represents so homely a scene as Calstock Bridge, "with a view of the river Tamar, looking towards Plymouth;" but it is the capricious art alone of the master that has raised this Devonshire stream, like the Exe, to the rank of a classical river. Macaulay has sung of the fisher leaving his boat to rock on "Tamar's glittering waves," and we may now say of this stream—

"Fics nobilium tu quoque fontium,"

immortalized as it is by the pencil of Turner. It would be needless to dwell on beauties which all appreciate, and the dissection of a lovely object would only break the charm of a masterpiece of landscape art.

1819. *Richmond Hill—The Prince Regent's Birthday.* This is a great descent from the last subject; the necessary prominence of the large groups of figures destroying the effect of the scenery. Of all figures, those arrayed in the ugly costumes of half a century ago are least adapted to Turner's powers, and the result is far from favourable.

Richmond Bridge. This is one of the later subjects, without a date. The light is confused, and the details indistinct; but great experience of the less obvious effects of nature may be traced in various portions of the work. It must, nevertheless, be set down among the examples of Turner's failing powers, when the hand and eye were unable to realize the cravings after the unreal and the unattainable in art.

Circ. 1820. *Rome from the Vatican—Raphael and the Fornarina in the Corridor of the 'Loggie.* One of Turner's peculiarities was his passion for crowding into a single picture a variety of art impressions, all bearing on the same subject, but drawn from a variety of sources. In the *Childe Harold's Pilgrimage* the ancient power and grandeur of Italy are brought into contrast with its modern double aspect of rural beauty and political depression. In the *Baiæ* associations of past and present years are similarly placed side by side. So in this picture of Rome, the ideas most familiar to an artist's conception of Rome, numerous as they are, seem eager to rush into existence all together upon the canvas. Here are the leading features of the city itself; first the painted corridors of the Vatican, then the Piazza of St. Peter's, further on the modern city, the Bridge of St. Angelo, the Tiber, the Campagna, and the purple Apennines in the distance pointed with snow. In the square is a gorgeous procession, bringing before the mind's eye the recollection of Rome ecclesiastic; and near the spectator, on the right and left, are the triumphs of modern art. Over the architecture, however, splendid as it is, painting reigns supreme, being represented in the person of its most complete master, represented in the company of La Fornarina, with strings of his arabesques on the walls, and some of his most famous works around him, amongst which the *Madonna della Sedia* is conspicuous. The figures are not the most refined in drawing, and the painting of the architecture seems to have been hasty, but the enthusiasm which inspired the painter's pencil is everywhere manifest.

1829. *The Loretto Necklace.* Although inferior in power to the *Ulysses*, and some other works of this date, Turner's supreme art is still manifest in the intricate mass of foliage of the great trees under which the lovers are sitting, and in the buildings on the right, piled upon a steep bank, which is covered with a profusion of dark olive foliage. The prevailing tint is the red blush of sunset, which is perceptible on the tops of the pines and on the highest points of the hill. The lower parts of the picture are in refreshing shade.

1830. *Pilate Washing his Hands.* On the left of the picture, in the dim distance, is represented the incident from which the work takes its name. On the right may be seen the figure of Christ bearing his cross; the women that followed to the place of crucifixion being in the foreground. This composition seems to have been made up from the recollection of a variety of impressions; the figures, if they resemble any one else, are certainly most like Rembrandt; but the action is extremely confused, and the colouring in some portions thin, in others loaded and oppressive to the eye.

1831. *The Vision of Medea.* This strange composition fortunately is explained by a passage from 'The Fallacies of Hope.' It is manifestly intended to suggest some of the principal particulars in Medea's fabulous history. Her figure is conspicuous, in a wild inspired attitude, brandishing what we discover from the poem to be a poisonous snake, in the air. At her foot is the cauldron in which may be supposed to be the drugs and herbs that were to restore Œson to youth and vigour. From the cauldron painted bubbles are rising fast into the air. In the fore front of the picture are three figures, somewhat elegantly treated for Turner, representing the Fates holding the thread of human life. A coil of the dragon is seen on the left; and through an opening at a long distance is with some difficulty to be made out a figure on the sea-shore, suggestive, perhaps, of Jason. All the upper right portion of the picture is confused through the changes that have taken place in the colours of the painting. There may be made out some bold tree stems and branches, a mass of vapour, and perhaps the chariot of Medea, and her children. In the sky, to the right, Medea's figure is seen in the clouds, throwing her children into the burning palace of Creon. Much of this picture has perished by disintegration of the materials. It is stated to have been painted at Rome in 1829, and exhibited in 1831.

Herr Eigner, one of the first picture restorers of Germany, has arrived at Salzburg, where he has been appointed by the Emperor to renovate in the imperial castle of Hellbron two rooms, the walls of which were painted in fresco by Mascagni, who lived in the seventeenth century, and was very celebrated in his day. The castle was built in 1614, by Marcus Sittikus, a Prince Bishop, and the works of art in it are highly interesting and most valuable.

The Archduke Ferdinand Maximilian of Austria has presented to the Holy Sepulchre of Jerusalem, amongst other valuable gifts, a very beautiful statue in bronze of Saint Helena, standing on

a pedestal representing a solid rock, and holding in her hand the cross, the original of which, it is asserted, she discovered in the neighbouring grotto. The pedestal bears the inscription:—"Ferdinandus Maximilianus, Archidux Austriæ. Erexit MDCCCLVII."

The monument at Rome to the Immaculate Conception is at length completed, and the bronze statue of the Madonna raised to its pedestal after her second trial by fire, the first casting in the Vatican foundry having been a failure. In the beginning of September the whole monument will be consecrated by the Pope, and opened to the public.

The third casting of the Radetzky monument, which is to be erected in Prague, has just been executed with the greatest success in Nuremberg. The next casting, which will take place in five or six weeks, will complete this colossal undertaking.

Eighty-six thousand five hundred and seventy-eight thalers have already been subscribed in the Prussian Rhenish provinces for the erection of a monument to the late king. The site, which has not as yet been decided on, will, it is said, be in some central part of Cologne; and as the amount of the subscription has been infinitely beyond what was at first even imagined, it is to be hoped that the execution of the work will be entrusted to a first-rate artist.

The Austrian papers speak in terms of very high praise of a large picture of the Emperor, by Herr Aigner, who was condemned by the Viennese tribunals, to a lengthened incarceration, on account of a libellous art criticism, which he published in one of the local papers. When in prison, he employed his time in painting the present picture, which was to be exhibited on the anniversary of the Emperor's birthday.

MUSIC AND THE DRAMA.

THIS week has witnessed another signal success at the Crystal Palace, in the meeting of the Tonic Sol-Fa Association, when an audience of above 30,000 were delighted by the performances of upwards of 3000 juvenile vocalists. Excepting at the annual gathering of the charity school children in St. Paul's Cathedral, seldom has so sweet a harmony by young voices been heard. The programme included many familiar songs and choruses, as well as hymns and sacred pieces. The 'Mountain Boy's Song,' from the German, the song called 'Bell Ringing,' to the well-known air of 'Caller Herring,' by Neill Gow, the chorus, 'Hail, Smiling Morn,' and other pieces, were rapturously encored. The training of the pupils of the Association, whose practisings have been diligently carried on during the last two seasons, is most creditable to Mr. Sarl and Mr. G. W. Young, the conductors of the concert. The singing is without any instrumental accompaniment. Between the two parts of the programme the interval was filled up with performances on the great organ by Mr. Willing, organist of the Foundling Hospital chapel. The national anthem concluded the proceedings. This attractive concert may confirm the directors of the Crystal Palace in their purpose of providing entertainments of a kind more acceptable to the masses of the people than those high-priced concerts which have been attended by very limited numbers. Another announced improvement is the making Saturday a shilling day, a step of which the propriety will be doubtless proved by the increased attendance of those who have now the privilege of a half-holiday at the close of the week. The number present on Wednesday, including season-ticket holders, was 31,461.

The returns of the receipts at the meetings at the Worcester Musical Festival make a sum of 980*l.*, but some donations are expected, by which it is hoped that 1000*l.* will be made up. This is below the last Worcester festival in 1854, which produced 1024*l.* 0s. 9d.; and that of 1851, which amounted to 1142*l.* 5s. The Gloucester meeting in 1856 brought 867*l.* 0s. 7d., and the Hereford meeting, in 1855, 870*l.* The festivals of the three choirs are managed with somewhat greater prudence than those in other parts of the country, but, on the whole, the charitable results of these musical meetings are not so marked as they were at an earlier period. From their number and frequency of performances of sacred music on a grand scale in different parts of the country, the attendance is not likely to be as large in future years, except by increasing the attractions, by the engagement of additional singers of the highest class, by whom the profits are consumed. However, any amount of surplus is so far a clear gain to charity, while the performances serve to extend a taste for musical art, and afford high enjoyment to many in the provinces who have no other opportunities of hearing the works of the great masters.

The plan of converting the Royal Panopticon into a Jardin d'Hiver has now been matured, and at a meeting this week, Mr. E. T. Smith, the lessee, presented carefully-prepared estimates of the expenses and the probable revenue. Offers for renting the various parts of the property have been received, and there seems every reasonable prospect of the project being successful.

The Grand Opera at Paris is at present engaged in rehearsing Auber's *Cheval de Bronze*, which has not been represented for many years. The Italian Theatre in the same city is to recommence its season on the 15th September, and amongst its *troupe* already engaged are Grisi and Alboni, Mario and Graziani.

On Wednesday, Goethe's *Iphigenia* was to have been produced at the theatre in Weimar, in honour of the Goethe-Schiller festival. On the 3rd a play of Dingelstedt, the new director, composed for the occasion, besides the *Paläophron and Nesterpe* of Goethe, and an act from Schiller's *Don Carlos;* on the 4th, acts from *Egmont, Tasso, Faust,* and Schiller's *Bell;* and on the 5th a magnificent concert will be conducted by Liszt. Herr Von Cotta, the publisher, has sent the munificent contribution of five hundred thalers to the fund.

LEARNED SOCIETIES.

ARCHÆOLOGICAL ASSOCIATION.

AN agreeable, if not very scientific, meeting of this Society has been held in Norwich and its vicinity, under the presidency of the Earl of Albemarle. The antiquities of Norfolk present great attractions for the archæologist, and the excursions and proceedings generally on this occasion were all of much antiquarian interest. At the opening meeting on Monday, after the usual preliminary addresses, in which Lord Albemarle and Sir J. P. Boileau took part, a paper was read by Mr. Pettigrew on the general History and Antiquities of the locality in which the Association was assembled. We give it as reported in the 'Norwich Mercury:'—

"The History and Antiquities of Norfolk.

"The form of the county of Norfolk is that of a wedge, and Camden derives the name Iceni from Iken, a wedge. Ickneld Street runs through Norfolk, Suffolk, and Cambridgeshire. From Tacitus we learn of the valour of the people who inhabited this province, and the same authority has given to us details of their early history. Having submitted to the Romans, they remained peaceable until the reign of Claudius Cæsar, when Ostorius disarmed them, and forced them to rebel. Revolts succeeded, and the province was ultimately bequeathed by King Prasurtagus to the Emperor Nero; thenceforth it became the prey of the Roman army, attended by all the horrors which, perhaps, necessarily accompany such conditions. The exploits of the violated Queen Boadicea, the widow of Prasurtagus, have formed frequent subjects for historical declamation and attractive illustration. The success of the Iceni in alliance with the Trinobantes, the immense slaughter of the Romans, and the routing of the 9th Legion, under Catus Decianus, is well known to those acquainted with early history, and few have failed to lament over the ultimate defeat of Boadicea, and her subsequent death by poison in the year A.D. 59. Connected with the early history of the county, we may here make mention of the presence of barrows found at Anmer, Sedgeford, Rudham, Stiffkey, Creek, Long Stratton, Wretham, Weeting, &c. Various examples of these remains are to be seen in our collections. They will be found enumerated and described in the pages of the Archæologia, the Norfolk Archæology, the journals of the Archæological Association, Institute, &c. &c.

"The extensive occupation of this county by the Romans, the establishment of Thetford as Sitomagus; Yarmouth, Garianonum; Caistor, Venta Icenorum; Tasburg, Ad Taum; Brancaster, Branodunum; Ickborough, Iciana; justly lead us to expect the discovery of many remains belonging to that people, nor have we been disappointed in that respect. The pages of our journal record numerous discoveries of Roman coins and other antiquities, and how much must have been found, and met with no record in former times! The vicissitudes to which the country has been exposed, its transition from British to Roman—from Roman to Saxon—from Saxon to Danish—and thence to Norman, under various circumstances of conquest and spoliation, as recorded in history, is confirmed by the discovery of remains belonging to those several times and peoples. Not only can the general outlines of most of the Roman camps be still traced, but also their principal military ways; hence we have the Watling Street, the Ickneld Street, Stone Street, and the Fosse-way, all indicative of their origin. Minute discrimination, however, is necessary in regard to the assignment of antiquities discovered. With some persons everything is Roman; with others, on the contrary, Saxon or Norman. The distinctive characteristics of these several times are, however, now beginning to be better known, and we trust will render us less liable to the censure of possessing 'an imagination heated by a warmth of erudition, fondly fostering every appearance bearing a resemblance to antiquity, and claiming indisputable credit from learned disquisitions.'

"In the enumeration I have made of the Roman stations in the county of Norfolk, I have mentioned Venta Icenorum as belonging to Caistor or Caister. On this point, however, we now possess more accurate knowledge, and I do not hesitate to express my concurrence in the assignment of this station to Norwich and not to Caistor. For this correction we are indebted to the erudite sagacity of Colonel Leake and Mr. Hudson Gurney. I cannot make mention of the names of these two distinguished friends without paying my tribute of regard to their varied and extensive knowledge. Nor can I forbear to announce with pride and satisfaction the zeal still entertained by him who bears that most respected name of Gurney in this county, for the advancement of all that is calculated to throw light upon the antiquities of his native place. With a generosity co-equal with the value and utility of the objects to which it is applied, Mr. Gurney has issued some interesting researches on this subject, to be presented to those who feel an interest in such inquiries, a contribution which will, I doubt not, be duly appreciated by all who have the good fortune to partake of this instance of his liberality and zeal for the promotion of archæological researches. Under the Saxon Heptarchy, the East Angles were established in A.D. 575, by Uffa. I abstain from wearying you even with an enumeration of the names of the several kings or rulers from this period to that of St. Edmund, so celebrated by his refusal to abjure Christianity, and his defeat and death in 870 by the Danes, who, in the ninth century, overran the kingdom."

Mr. Pettigrew proceeded to trace the history of the Castle, and then touched on the history of Merchants' Marks.

"Merchants' marks are of very frequent occurrence in Norwich. In a walk through a portion of the city, in which I had the great advantage to be accompanied by Mr. Fitch and Mr. Ewing, who have most kindly undertaken to conduct us on this occasion, I was surprised at their number. Their importance in fixing the residence of those who in former times had inhabited the houses in which

they appear, was made known to me by the latter gentleman, whose labours in regard to these insignia have been published in the 'Norfolk Archæology,' and by Mr. Muskett, in 1850. These notices of the merchants' marks are not confined to the examples carved in the city of Norwich, but extend also to those which appear on the seals attached to the deeds preserved at the Guildhall. They were employed chiefly from 1300 to 1600. Shopkeepers in general used them; they were not confined to merchants, and they are to be seen as marks in painted glass, put up to acknowledge gifts or services rendered by those to whom they relate. The insertion of the merchants' mark in the coat of arms is very common. Their great number at Norwich is probably to be accounted for by its being one of the staple towns.

"The stapel or estaple towns were Newcastle-upon-Tyne, York, Lincoln, Norwich, Westminster, Canterbury, Chichester, Exeter, Bristol, Hull, Boston, Queenborough, Southampton, and Yarmouth, the seal of the staple of which, made in 1369, has continued to be used on the burgess letters. Estaple signifies mart or market, and stapel, in Saxon, is the stay or hold of a thing. The goods were compelled to be brought to the staple town for sale or exportation, to be weighed, measured, &c., and made chargeable to the customs. The merchants of the staple were incorporated by Edward II.; abolished by Edward III., in 1328; re-established by him in 1332; fixing it at York, in 1334; at Bruges, in 1341; and at Calais, in 1348. In 1353 (27th Edward III.) it was once more removed to this country, and at the places I have stated. It had been at Antwerp in 1313, and Cardiff was an early place of staple.

"Magistrates were accustomed to have carved and ornamented posts placed at their gateways—many of these were at Norwich, but I believe none are remaining at this day. In a MS. history of Norwich, by Mr. Mackerell, in the possession of Hudson Gurney, Esq., written in 1737, it is said 'Edward, the husband of Izod Rede, was mayor of this city A.D. 1521, and lived where the Three Tuns Tavern now is, whose arms are in brass on her gravestone, and are the same as those which still remain at the gate, it being the custom at that time, whenever persons were chosen magistrates, to have posts set down at their doors. They who had arms had them carved thereon; others had the King's, St. George, or the city arms painted, or the arms of the trade of which they were members, many of which remain in all parts of the city even to this day, though this custom has long since been disused.' Mr. M. gives a representation of four, but they, together with others, have disappeared.

"Our old associate and excellent antiquary, John Adey Repton, in the Archæologia (vol. xix. page 383), has given drawings illustrative of the magistrates' posts at Elm Hill, near the Tombland, Norwich. One of these is of the time of Henry VIII., was covered with red paint; another had the letters T. P., the initials of Thomas Pettys, mayor of Norwich in 1582. Mr. Repton has also referred to passages in which the practice is alluded to. Thus in 'Lingua,' 1607, Communis Sensus says, 'Knowas he how to become a scarlet gowne? hath he a paire of fresh posts at his door?' And in the 'Widow' of Beaumont and Fletcher, she observes, 'A pair of such brothers were fitter for posts without door, indeed to make a show at a new chosen magistrate's gate,' &c. Dakkan has 'the posts of his gate are a painting too.' And Rowley, in 1632, 'If e'er I live to see the Sheriff of London, I'll gild thy posts.'

"Guilds were associations to advance trade, charity, and religion. They date from Saxon times, but prevailed chiefly in the 14th and 15th centuries. Norwich had many, but Yarmouth had, perhaps, the greatest number; they were named the guilds of the Holy Trinity, St. George, the Browne Rood, St. Crispin and Christiana, St. Christopher, St. Erasmus, Our Lord's Ascension, Holy Cross, St. John, Lesser Guild of the Holy Trinity, St. John the Baptist, St. Margaret, St. Mary de la Pere, St. Mary, St. Nicholas, The Holy Ghost, St. Peter, Our Lady of St. Nicholas, St. Mary de West Town. The chapels of most of these were in St. Nicholas Church. All, with the iexception of the Merchants' Guild, were dissolved in 1545. Mr. Palmer has given many interesting particulars of these guilds, and the property possessed by them at the time of their dissolution.

"I have given the time of Edward II. as the period of incorporation of the Merchants of the Staple. The Guild of St. George at Norwich dates also from this period. The Norfolk and Norwich Archæological Society have printed an account of this company from the MS. history, by Mackerell, to which I have referred. The fraternity dates 1324 (18th Edward II.), and was instituted in 'the Cathedral Churche aforn the heie Auter, aforn the Trinitie, on the south side in Norwych.' They wore a particular dress, red gowns and hoods, which the members were forbidden to dispose of in any way, under a prescribed penalty. On the election of a new Mayor, St. George's Guild of Norwich always walked in procession, and gave a large dinner. In the procession appeared a dragon, without which St. George would literally be an uninteresting personage, and it is preserved to this day, being probably the only relic remaining of the ancient custom, and is now safely ensconced in the Guildhall, and well known by the name of Snap. It is made of wicker work, so contrived as to spread and close its wings, distend or contract its head, and is covered over with painted cloth. A man within it used to walk in the procession. In 1408, it was agreed to furnish priests with copes, and the George was directed to go in procession and make a conflict with the dragon. The rebellion of Kett forms a remarkable feature in the history of Norfolk; but it must be reserved for a special notice, should time admit of its introduction. I must now hasten to the ecclesiastical division of our subjects.

"The monasteries and religious houses in Norfolk were very numerous. A list of them, at the time of the dissolution, may be found in Tanner's 'Notitia Monastica,' and Taylor's 'Index Monasticus.' In Norwich alone were—1, the Cathedral or Convent; 2, St. Mary; 3, St. Francis; 4, St. Dominic; 5, St. Augustine; 6, St. Giles; 7, St. Paul. In Thetford they were not less numerous. 1, House of Friars; 2, Monastery of Augustine Friars; 3, St. Sepulchre; 4, Priory of St. Mary and St. John; 5, St. Gregory; 6, St. Andrew; 7, St. Mary; 8, St. Mary Magdalen. Yarmouth had also—1, a Cell to Norwich; 2, St. Mary; 3, St. Dominic; 4, St. Francis. No less than 77 religious houses were dissolved by Henry VIII. in the county of Norfolk. Many others, under the denomination of Alien Priories and Hospitals, were also dissolved. A history of the pilgrimages made to Our Lady at Walsingham, Our Lady at Reepham, Our Lady of Pity at Horstead, to St. John's Head of Trimmingham, and many others I could enumerate, would not be uninteresting. Of monastic orders, clerical, military, and conventual, including colleges, hospitals, leper houses, &c., there were in Norfolk, belonging to the diocese of Norwich, no less than 153, and of hermitages, chantries, free chapels, guilds, shrines, and places of pilgrimages, 1202, making altogether 1355 houses, and according to the Valor Ecclesiasticus, the valuation of the former 153 being 629*3l.* 11s. 2¾d. There were Benedictines, or Black Monks and Nuns; Cistercian, or White Monks and Nuns; Cluniac Monks and Nuns of the Order of St. Fontevrault. Of the clerical,—regular canons of the Holy Sepulchre or Cross; of St. Augustine, Premonstratensian and Gilbertine Canons and Nuns. Of military—there were the Knight Templars and Hospitallers; Sister Hospitallers of St. John, the Holy Trinity, &c. The Conventual—were Dominicans, Franciscans, Carmelites, Eremites, Pied Friars, Nuns, Minorasses, &c. Some of the conventual and collegiate churches belonging to these are still in use at Norwich, Attleburgh, Wymondham, Lynn, &c., some of which will form subjects for an examination during the Congress.

"The Norwich Cathedral Priory may be characterized as mostly Norman, having a long nave, choir with semicircular east end, transept, dormitory, refectory, and strangers' hall. A small portion only will be found to belong to the early English period, and in this style will be found a portion of the strangers' hall. The chapter house, cloisters, and cellar belong to the decorated period, and examples of the perpendicular may be seen in portions of the choir, which also characterize a part of the cloisters.

"The first stone of the Cathedral Church of the Holy Trinity was laid by Herbert de Losinga in 1096, and 60 monks were therein placed and in the adjoining priory in 1101. They were Benedictines. Mr. H. Harrod thinks the church of Herbert to have been built on the site of a more ancient one, dedicated also to the Holy Trinity. It appears, however, that the Cathedral Church was commonly called Christ's Church, and early references are made to it by Tifled and by the chronicler Ingulphus, under date of 1076. It is curious that whilst in the wills of the upper classes it is styled Church of the Holy Trinity, in those of a more humble description it is called Christ Church. Of these peculiarities Mr. Harrod has cited several examples.

"Mr. Spurdens has proved Herbert to have been an Englishman—not a Norman, as generally supposed; that he was born at Syleham, in the hundred of Hoxne, in Suffolk; and that the appendage 'de Lozinga,' almost uniformly attached to his name, must have been a nickname given to him by his detractors after his decease.

"The Cathedral was damaged by fire as early as 1171; a century later it was again ravaged by that element. Two conflicting accounts have been given of this event—one taken from the 'Liber de Antiquis Legibus' of the Corporation of London, the other from the Cotton MSS., the former being the version derivable from the Corporation of Norwich, the latter from the monkish history. At the visit of the Archæological Institute in 1847, Professor Willis directed his attention minutely to these events, as affording reliable evidence of the several periods of the erection of different portions of the Cathedral, and it is much to be lamented that his discourse on this occasion has not hitherto been published. The time prescribed by Horace to all judicious writers having elapsed, we may venture to hope that the promised work may soon see the light.

"Two gates give entrance to the precinct—the upper, St. Ethelbert's Gate, built by the citizens after the fire of 1272; the lower, known as Erpingham Gate. Upon this the word 'Pena' has been often recorded to be inscribed, and the building of the gate is said to have been erected as a penance or punishment to Sir Thomas Erpingham for his supposed Lollardy. This word, however, is not 'Pena,' but 'Yenk,' and means 'Think;' it is, in short, Sir Thomas's motto, 'Beware.' With regard to the time of erection, Mr. Harrod justly infers that it must have been subsequent to 1411, as the arms of his two wives occur upon it, and he did not marry Joan Walton until this year. His first wife was Joan Clopton. He died in 1428, and, together with his wives, was interred in the north aisle of the choir, but his tomb has been destroyed.

"The fine stone vaulting in the nave is attributed to Bishop Lyhart, whose rebus frequently occurs. He was bishop between 1426 and 1436. The bosses of the roof and the cloister formerly presented an immense number of historical figures, amounting (according to Philip Browne) to 328 in number, curiously carved. The series extended in subjects from the Creation to the Last Day of Judgment. The painting and gilding of these have been entirely removed by a coating of stone-coloured wash, with which it was disfigured in 1806. A circular opening between the west door and screen, of considerable size, has often been a subject of conjecture and discussion. Mr. Harrod has, I think, solved the question by reference to an extract from Warton's 'History of English Poetry' (vol. i. page 240), taken from Lambarde's

'Topographical Dictionary.' It runs thus:—'I myself, being a child, once saw in Poule's Church, at London, at a feast of Whitsuntide, wheare the coming down of the Holy Ghost was set forth by a white pigeon, that was let to fly out of a hole that is yet to be seen in the mydst of the roof of the great ile, and by a long censor which, descending out of the same place almost to the ground, was swinged up and down at such length that it reached at one swepe almost to the west gate of the church, and with the other to the quaer stairs of the same, breathing out over the whole church and companie a most pleasant perfume of such sweet things as burned therein.' Mr. Harrod has observed in a very casual peep at the Sacrist Rolls at Norwich, charges made for letting a man down from the roof habited as an angel, with a censer to cense the rood. This feat, he observes, could have been accomplished from the hole I have alluded to.

"The Iconoclasts, during the rebellion, worked hard to deface the Cathedral. Not only have the effigies of Bishops Scambler and Parkhurst disappeared, but with the exception of one small brass in Jesus Chapel, not a specimen is to be found.

"The Tower, early Norman, must be esteemed for its grandeur and beauty. The lofty perpendicular spire is also entitled to our admiration. A painted wooden reredos was formerly in the Cathedral. It has been removed and fixed in a corner of the vestry. It belongs to the fourteenth century, and represents, in five compartments, the Scourging, Bearing of the Cross, Crucifixion, Resurrection, and Ascension. This recovery is due to Mr. Harrod, who found it doing duty as a table for sorting paper in the treasury, turned bottom upwards. It has been engraved by Le Keux, in the Norwich volume of the Archæological Institute, from a drawing by Mr. Digby Wyatt. This gentleman agrees with Mr. Way in assigning its execution to the early Italian school. He attributes the work to some student of the Siamese masters of the 14th century. Norwich contains, scattered about throughout the city, numerous specimens of carved wooden work. These will be duly presented to our notice by Mr. Ewing. The subsellia, or misereres, as they are vulgarly and ridiculously called, are numerous in the Cathedral. Mr. Harrod enumerates the subjects carved upon 62 of these—the number required for prior, sub-prior, and 60 monks. They present personifications of saints, emblems, heraldic bearings, and many are very grotesque. Several exhibit much skill, and their execution has been assigned to about 1480. Some have even been engraved in the 'Norfolk Archæology,' vol. ii. p. 234–252; and a good description given by the Rev. R. Hart, who has entered upon the subject at considerable length. In a Norman niche, above the north door exteriorly, is a sculptured figure of a bishop, which has been conjectured to be a representation of Bishop Herbert, the founder.

"The stone roof of the transept has a series of bosses relating to the Nativity, &c.

"The cloister has received much and deserved attention from Mr. Harrod, who is warm in his expressions as to the magnificence of its area, the beauty and variety of its architecture, and its marvellous roof. It is not, however, the Norman cloister, and whether that was of stone or wood is unknown. The present cloister dates no earlier than the close of the 13th century, and may be considered as belonging to the beginning of the decorated period. The fire of 1272 destroyed the original cloister. There is a particular account of the building of the present cloister by William of Worcester, preserved in Christchurch College, Cambridge, and the date given to the commencement of the work is fixed at 1297, and by Lord Ralph Walpole, then bishop of Norwich. This is confirmed by a stone in the west part of the cloister, with this inscription—'The Lord Ralph Walpole, bishop of Norwich, placed me.' The inceptor and designer is in like manner distinguished on another stone by an inscription—'Richard Upphalle placed me.' The door into the cathedral is remarkable, and has been figured by Carter and Britton. Doubts exist in regard to the position occupied by the Infirmary. This constitutes a subject worthy the attention of our architects. I forbear to enter upon further details in regard to the cathedral, and shall close these observations by relating an anecdote, which may serve as an admonition to antiquaries to be particular in making their transcripts. The 'History of Norwich Cathedral,' by Bloomfield, points out a boss over the refectory door as being carved with the figure of the Espousals, and in a 'Guide to the Church,' it was made to be 'a sacrament of marriage, represented by our first parents, the custom being formerly for the couple who were to be married to be placed at the church door, where the priest used to join their hands and perform the greatest part of the matrimonial office.' Bloomfield indulges in a long disquisition in regard to marriage at the church door; but neither he, nor those who have followed him, appear to have recollected that it was no church door at all, but merely the door of the refectory of the convent. Mr. Harrod examined this boss, and tells us that it represents Adam and Eve on each side of the tree as usual, and the serpent tempting. So there is an end of the 'Espousals.' But there is a phrase appertaining to it, and it has been read '*in quibus maritagia dependant.*' Examination of the writing of William of Worcester at once solved the mystery, the word is not *maritagia*, relating to marriage, but *manutorgia*, so that we may read the passage '*in quibus manutorgia dependant*'—in which the towels hung, or where the hands were wiped, not where the marriage was celebrated or the hands joined together.

"The churches of Norfolk are too numerous even to be referred to in a paper of this description. There are no less than thirty-four in Norwich, independent of five other hamlet churches.

"Of rood screens and wood carving examples in Norfolk are yet numerous, although many fine specimens have disappeared. Painted rood screens were more numerous in Norfolk than perhaps all other counties together. Three hundred at least, according to a calculation made by the Rev. Richard Hart, must have been destroyed by the Puritans and the subsequent neglect of them. They are fine illustrations of mediæval art, and good examples are remaining at Worstead, Barton, Marsham, Aylsham, and Randworth, of the latter of which Mr. Hart has given us a plate. He has also exhibited the peculiarities in the colours employed, and the means of applying them. Of a very extended and remarkable example at the church of St. Andrew at North Burlingham, the Rev. John Gunn has given an account, and attempted a synoptic table, to facilitate description and aid in comparison. No one has, however, yet followed so excellent an example. The subjects on this screen are most diversified, and present representations of various saints, virtues, powers, thrones, angels, archangels, &c. The table embraces the subjects on the screens at Barton, Irstead, Randworth, Lessingham, and North Burlingham. The Rev. J. Lee Warner has also described a screen at Houghton.

"Mural paintings have been discovered in several Norfolk churches. Mr. Dawson Turner has a fine collection of drawings of them, thirteen relating to Catfield church, of the time of Edward III. He is of opinion that a large proportion, and possibly the whole of the Norfolk parochial churches, had their interior walls originally ornamented with paintings, and that these were the work of different hands, from the saints, &c., on the rood loft screens, and were also very inferior in point of execution. The Very Rev. F. C. Husenbeth has minutely described the subjects—The Wheel of Fortune, the Tree of the Seven Deadly Sins, the Contrary Virtues, Baptism, Confirmation, Penance, Confession, Matrimony, Extreme Unction, Crucifixion, the Samaritan Woman and the Saviour at the Well of Jacob, St. Luke, Nathan and David. These are not to be considered as altogether perfect, but sufficiently so to enable the subject to be discerned.

"Another mural painting was found at Wimbotsham church, representing St. Christopher with the Infant Saviour; and at Crostwight church there are the Deadly Sins, St. Michael, St. Christopher, Christ before Pilate, the Confession, &c.; at Ditchingham church, the Resurrection and other subjects, as at Wymondham. At Drayton, Mr. Husenbeth has described St. Christopher, St. George, Christ appearing to Mary Magdalen, Consecration Crosses, the Saviour. At Cawston, the Rev. James Bulwer has made out St. Agnes; whilst at Brooke, the Rev. William Beale has found the Creed written in eleven small narrow parallel columns, extending the whole width of the church, in colours red and black. This was on the western wall, so that clearly at the time in which it was executed—probably about the commencement of the Reformation—it could not have been the practice of worshippers in reciting the Creed to turn towards the east. The Commandments were also written on the wall, and there is also a curious representation of an alewife, similar to one engraved by us from a Miserere in Ludlow church. The ale represented as being drawn from the barrel is personified by flame. An angel above is issuing also forth in fire, and flames are beneath the woodwork on which the barrel rests. This would form an admirable vignette for the papers of the Temperance Society.

"It was a practice, as we know from churchwardens' books, to execute mural paintings of portions of scriptures in the reign of Edward VI.; and at St. Mary Hill, London, there are entries of payments for the same of the date of 1547; and at St. Mary, Westminster, in 1554, for washing out a portion of scripture that had been written on the high altar table. They must date from before 1560, when the order was issued for placing the tables of the Commandments at the east end of the church. In Brooke church, much was observed that could not be made out—one portion was considered to relate to the Prodigal Son, and from the style of painting was assigned to the middle of the 14th century. The mortal sins were typified, and hell displayed with monstrous jaws for the reception of the wicked. A curious figure of a bear, armed with halbert and sword, is grotesquely making off with a victim, whom he is dragging by the legs upon his back. Here also was represented St. Christopher, and Adam and Eve being driven out of Paradise.

"At Stow Bardolph, the Rev. G. H. Dashwood found two representations of St. Christopher—one of about the date of 1400, the other a century later, the Martyrdom of St. Edward, part of a Judgment scene, the Crucifixion, and various heraldic bearings of the house of Beaufort. The manor of Stow Bardolph was granted to Thomas Beaufort, fterwards Duke of Exeter, by Henry IV. The mblems of the Passion are attributed to this period. At Fritton, the Rev. J. Gunn discovered St. Christopher, St. George, &c. At Burlingham St. Edmund, a representation of the murder of St. Thomas à Becket was discovered in July, 1856, somewhat similar in character to one found at St. John's, Winchester, fully described and figured by Mr. Baigent, in our Journal. The walls on which mural paintings are met with, are usually found covered with diapering and patterns of scroll work, stripes, flowers, and stars.

"The most recent discovery of mural painting in a Norfolk church has been communicated by the Rev. C. F. Husenbeth to the Norfolk and Norwich Archæological Society, in the month of April last, but discovered in 1852, at Limpenhoe. The subject consists of a representation of the history and martyrdom of St. Catherine, which is seen in a succession of paintings in different parts of the church."

In the evening the members again assembled in the Council Chamber, when papers were read, by Sir Fortunatus Dwarris, 'On the Privileges of Sanctuary and Abjuration formerly accorded to Churches and their Precincts, the Monasteries, and other Religious Houses;' and by Mr. Planché, 'On Raoul de Gael, the First Earl of Norfolk.'

To Correspondents.—L. N.; B.; K.P.P.; S.T.; F.—received.

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PARTULA	0	5	6
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London: Printed for Lovell Reeve, of West Hill, Wandsworth, in the County of Surrey (at the Office of Messrs. Savill and Edwards, No. 4, Chandos Street, Covent Garden), and published by him at his Office, 5, Henrietta Street, Covent Garden.—SATURDAY, September 5, 1857.